“Empowering women to advance in the sciences, engineering and technology is critical to solving many of the challenges faced by both the developing and the developed world. Our goal is to ensure that Faculty for the Future Fellows are equipped with the knowledge and skills necessary for them to teach, research, drive innovation and help their societies implement change leading to increased prosperity and economic development.”

Mr. Sola Oyinlola
Chairman Africa & Global Head of Sustainability, President of the Schlumberger Foundation, Schlumberger
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Cambridge (MA) Fellows
Regional Forum 2014

The Schlumberger Foundation Faculty for the Future program was launched in 2004. Since the program was implemented, the Schlumberger Foundation hosted 11 meetings (forums) for its Faculty for the Future community of fellows and alumni in the United Kingdom (London and Cambridge), in France (Paris and Clamart), in the United States (New York, Cambridge and Houston) and in the United Arab Emirates (Abu Dhabi).

These in-person meetings are hosted once or twice a year in close proximity to and in association with the universities where the grantees are pursuing their studies. With approximately 30 to 60 grantees in attendance, a regional forum provides an opportunity for participants to meet and share research and life experiences, to initiate international collaborations, to learn techniques to spread and communicate their research, to meet and network with well-known scientists and other accomplished leaders who might act as career mentors, and to discuss such things as work / life balance and other gender specific issues.

The ultimate goal is to create a community of women leaders in science, technology, engineering and mathematics (STEM) who will support the socio-economic development of their native regions by strengthening the faculties in their home universities through teaching and conducting research into relevant local challenges, inspiring other young women to pursue STEM careers, and use their scientific expertise to influence policy making and catalyze socio-economic development locally and internationally.

Amongst Faculty for the Future fellows and alumni (405 grantees), 38% attended a Faculty for the Future forum at least one time. Excluding the 2014 new grantees who are newcomers in the program, approximately 50% of the fellows and alumni already attended a forum.
The Schlumberger Foundation is hosting its 12th Faculty for the Future forum for the community in Cambridge, United States from November 3rd to 5th, 2014.

The agenda of the forum has been developed with the following key question in mind: “Can STEM education be instrumental in achieving the Millennium Development Goals?”

60 Fellows have been invited to attend the forum, they come from 31 developing countries and are currently studying in 40 universities in the US, Canada & Mexico.

During the forum, attendees will have the opportunity to share their research, establish collaborations, discuss relevant topics and meet the Faculty for the Future community, Schlumberger researchers and executives as well as high quality speakers.

To this end, they will participate in various sessions including:
- Poster sessions (posters of their work);
- Panel sessions of experts or accomplished leaders sharing their views on issues of topical interest;
- Break-out sessions (among the fellows facilitated by mentors and/or other leaders);
- Keynote talks (speakers on topics of leadership, community engagement and inspiration in general);
- Learning sessions (skills development, knowledge exchange).
At the end of the forum, the Foundation hopes to achieve the following goals:

- Faculty for the Future fellows to increase their networks, meet other fellows, resource persons, other scientists and leaders, Foundation officials and other Schlumberger executives;
- Fellows to participate in interactive sessions and learn something useful about topical issues facing the society around them;
- Fellows to have a deeper appreciation for the abundance of resources available in the country of study to help them master their own domains and imbue them with the passion to similarly share their expertise with their home communities and home countries;
- Fellows to share the goals of the Schlumberger Foundation and its sponsors (Schlumberger) to empower STEM, encourage the development of a more technically literate society, use STEM to foster the socio-economic development and engender techno-entrepreneurial ecosystems around the world and do so with integrity and transparency. Hence, we expect fellows to share the values of the sponsors about the importance of talent, diversity, people, technology, integrity and creating positive socio-economic and environmental value-added wherever we engage around the world.
Acknowledgments

The Schlumberger Foundation thanks its Faculty for the Future fellows for participating in this event with such enthusiasm.

The Foundation also appreciates the dedication of the event speakers and facilitators who gave some of their precious time to contribute to its mission.

The Schlumberger Foundation is thankful to the Massachusetts Institute of Technology (MIT) for the continuous collaboration and gratefully acknowledges the generous assistance and valuable contribution of the Industrial Liaison Program of the MIT (ILP—MIT) in the organization of the Faculty for the Future fellows Forum of Cambridge.

And thank you to the Whitehead Institute, the D-Lab and the Media Lab for their involvement in the success of this forum.

The organization of this event would not have been possible without the support of Schlumberger Limited and of the Schlumberger Doll Research Center (SDR) staff and researchers.
# FORUM DAY 1: Monday, November 3rd, 2014

**Venue:** Schlumberger Doll Research Center (SDR)
1 Hampshire St, Cambridge, MA 02139, United States
Phone: +1 617-768-2000

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<td>Welcoming of participants</td>
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<tr>
<td>09:15</td>
<td>SDR: Auditorium</td>
<td>Welcoming remarks</td>
<td><strong>Dr. Tarek M. Habashy,</strong> Schlumberger Fellow &amp;</td>
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<td>09:45</td>
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<td><strong>SDR Managing Director</strong></td>
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<td>10:00</td>
<td>SDR: Labs</td>
<td>Visit labs of Schlumberger</td>
<td>Faculty for the Future Fellows</td>
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<td>11:15</td>
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<td>Doll Research Center</td>
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<td>11:30</td>
<td>SDR: Cafeteria</td>
<td>Poster session</td>
<td>Faculty for the Future Fellows</td>
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<td>SDR: Cafeteria</td>
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<td><strong>Mr. Sola Oyinlola,</strong> President, Schlumberger Foundation</td>
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<tr>
<td>13:15</td>
<td>SDR: Auditorium</td>
<td>Welcome &amp; introduction</td>
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<td>13:30</td>
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<td><strong>Panel session:</strong> What could still be keeping women out of the STEM fields?</td>
<td><strong>Panelists:</strong></td>
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<td><strong>Dr. Hazel L. Sive,</strong> Professor of Biology, MIT</td>
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<td><strong>Dr. Nina Dudnik,</strong> Founder &amp; CEO, Seeding Labs</td>
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<td><strong>Ms. Eugenie Samuel Reich,</strong> Boston-based science journalist</td>
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<td><strong>Ms Jennifer Hohman,</strong> Director of IT, ConocoPhillips</td>
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<td><strong>Moderator:</strong></td>
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<td><strong>Dr. Hazel L. Sive,</strong> Professor of Biology, MIT</td>
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<tr>
<td>14:45</td>
<td>SDR: Auditorium</td>
<td><strong>Break-out session:</strong></td>
<td><strong>Facilitators:</strong></td>
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<td>15:45</td>
<td></td>
<td>■ Why do some countries outperform others in STEM fields? What keeps minorities and some nationalities out of STEM fields?</td>
<td>■ Dr. Sandeep Verma, Scientific Advisor, Mechanical and Materials Sciences Department, Schlumberger Doll Research Center</td>
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<td></td>
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<td>■ Women in STEM begins with girls in STEM: what are the ways to support the new generation?</td>
<td>■ Ms. Chasity Williams, Service Delivery Manager Microsoft Services Enterprise Strategy</td>
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<td></td>
<td></td>
<td>■ Women in STEM as an instrument to reach the Millennium Development Goals?</td>
<td>■ Dr. Agathe Robisson, Program Manager and Principal Research Scientist, Schlumberger Doll Research Center</td>
</tr>
<tr>
<td>16:00</td>
<td>SDR: Auditorium</td>
<td>Groups findings presentation &amp; wrap-up of the day by moderator</td>
<td>Dr. Thierry Simien, SEED Program Manager, Schlumberger</td>
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<td>17:00</td>
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<td>19:00</td>
<td>Hotel Marlowe</td>
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<td>19:30</td>
<td>Hampshire House</td>
<td>Dinner &amp; keynote talk</td>
<td>Dr. Monica G. Williams-Davis, Managing Director, Southwest Region U.S. Fund for UNICEF</td>
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<tr>
<td>22:00</td>
<td>Hampshire House</td>
<td>Bus Pick-up</td>
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**FORUM DAY 2: Tuesday, November 4th, 2014**

**Venue:** Schlumberger Doll Research Center (SDR)
1 Hampshire St, Cambridge, MA 02139, United States
Phone: +1 617-768-2000

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<td>SDR: Lobby</td>
<td>Welcoming of participants</td>
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<tr>
<td>08:45-</td>
<td>SDR: Lobby</td>
<td>Group photo</td>
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| 09:00   | SDR: Auditorium | Welcoming & introduction                  | Mr. Sola Oyinlola,  
President, Schlumberger Foundation                                   |
| 09:15   | SDR: Auditorium | Learning session: Technology in the oil &  
gas industry. And Q&A            | Dr. Najib Abusalbi,  
Corporate University Relations Manager, Schlumberger                  |
| 10:00   | SDR: Cafeteria | Coffee break                                  |                                                                     |
| 10:15   | SDR: Auditorium | Panel session: The continued difficulty  
of the technology and other technical  
industries (like Oil & Gas) to attract and retain women: what do companies do to increase the pipeline of STEM (especially women and minorities) for the future? How do we improve the retention of women as companies grow? | Panelists:  
- Ms. Janice Hyslip,  
Career Planning & Diversity Manager, Schlumberger  
- Ms. Aparna Prabhakar,  
Technology Innovation Program Manager, IBM Corporate Technical Strategy  
- Dr. Claudia Urrea,  
Visiting Research Scientist at the MIT—Media Lab  
Moderator:  
Ms. Paula Harris, Community Affairs Manager, Schlumberger |
<p>| 11:30   | SDR: Cafeteria | Poster session                                | Faculty for the Future Fellows                                       |</p>
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<tr>
<td>12:30</td>
<td>SDR: Cafeteria</td>
<td>Buffet lunch</td>
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</tr>
<tr>
<td>13:30</td>
<td>SDR: Auditorium</td>
<td>Introduction</td>
<td>Mr. Sola Oyinlola, President, Schlumberger Foundation</td>
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<tr>
<td>13:45</td>
<td>SDR: Auditorium</td>
<td>Introduction</td>
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<tr>
<td>14:00</td>
<td>SDR: Auditorium</td>
<td>Learning session: Mentoring &amp; being mentored</td>
<td>Dr. Mary Fernandez, CEO, Mentornet</td>
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<td>14:00</td>
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<tr>
<td>15:30</td>
<td>SDR: Auditorium</td>
<td>Coffee break</td>
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<td>15:30</td>
<td>SDR: Auditorium</td>
<td>Break-out session: Can STEM help to cure the major ailments of the modern world? How should countries use STEM to make policy in these problem areas?</td>
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<tr>
<td>15:45</td>
<td>SDR: Auditorium</td>
<td></td>
<td>Facilitators:</td>
</tr>
<tr>
<td>16:30</td>
<td>SDR: Auditorium</td>
<td></td>
<td>- Dr. Eloise Marais, Postdoctoral Research in Atmospheric Chemistry, Harvard University</td>
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<tr>
<td>16:30</td>
<td>SDR: Auditorium</td>
<td></td>
<td>- Dr. Laura Dominguez-Duenas, Professor, UNAM</td>
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<tr>
<td>16:30</td>
<td>SDR: Auditorium</td>
<td></td>
<td>- Dr. Tuyeni Mwampamba, Professor, UNAM</td>
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<tr>
<td>16:30</td>
<td>SDR: Auditorium</td>
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<td>- Dr. Julius Kusuma, Principal Scientist, Telemetry Research Leader, Schlumberger Doll Research Center</td>
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<tr>
<td>17:00</td>
<td>SDR: Auditorium</td>
<td>Groups findings presentation &amp; wrap-up of the day by moderator</td>
<td>Ms. Paula Harris, Community Affairs Manager, Schlumberger</td>
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<td>17:00</td>
<td>SDR</td>
<td>Bus pick-up</td>
<td>FREE time &amp; FREE dinner</td>
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# FORUM DAY 3: Wednesday, November 5th, 2014

**Venue:** MIT  
Tang Center (Building E51)  
70 Memorial Drive, Cambridge, MA 02139

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| 09:00 | MIT: Auditorium | Welcoming of participants, QHSE & induction | Dr. Ronald Spangler,  
Senior Industrial Liaison Officer,  
MIT Office of Corporate Relations |
| 09:15 | MIT: Auditorium | Introduction                                | Mr. Sola Oyinlola,  
President, Schlumberger Foundation                                  |
| 09:30 | MIT: Auditorium | Learning session: Equipping & supporting next generation of STEM Leaders | Dr. Nina Dudnik,  
Founder & CEO, Seeding Labs                                           |
| 10:15 | MIT: Cafeteria | Coffee break                                  |                                                                      |
| 10:30 | MIT: Auditorium | Panel session: Innovation & technology as growth propellants and a development leveler | Panelists:  
- Dr. Calestous Juma,  
Harvard University, Professor of the Practice of International Development, Director, Science, Technology, Globalization  
- Mr. Julius O. Akinyemi,  
Unleashing the Wealth of Nations project, Resident Entrepreneur at MIT Media Lab  
- Mr. Victor Grau Serrat,  
Co-director of D-Lab, MIT  
Moderator:  
Dr. Calestous Juma,  
Harvard University, Professor of the Practice of International Development, Director, Science, Technology, Globalization |
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| 12:00 | MIT: Auditorium     | Closing remarks                           | **Mr. Sola Oyinlola,**  
 President, Schlumberger Foundation                                  |
| 12:30 | 12:30               | Lunch                                     |                                                                      |
| 14:00 | MIT: Cafeteria      | Lunch                                     |                                                                      |
| 14:00 | TBD in MIT          | Rapporteurs wrap up notes & action plans  | **Sola Oyinlola, Thierry Simien,**  
 **Paula Harris, Eve Millon**  
 + other volunteers                                                      |
| 15:00 | MIT: Whitehead Institute | **Keynote talk:** Developing drugs and building companies to treat rare diseases  
 And Lab tour                                                            | **Dr. Harvey Lodish,**  
 Member, Whitehead Institute;  
 Professor of Biology, MIT;  
 Professor of Bioengineering, MIT                                        |
| 17:00 | MIT: Whitehead Institute | Bus pick-up                              | Tour organized by Faculty for the Future Fellow Novalia Pishesha     |
| 20:00 | Restaurant Dante    | Good bye dinner                           | **Faculty for the Future Fellows**                                   |
| 22:00 |                      |                                           |                                                                      |
Nationality of Faculty for the Future Fellows Attendees
Universities of Study of Faculty for the Future Fellows Attendees

1. Massachusetts Institute of Technology
2. California Institute of Technology
3. Georgia Institute of Technology
4. University of Texas at Austin
5. Carnegie Mellon University
6. Cornell University
7. Harvard University
8. McMaster University
9. Oklahoma State University
10. Purdue University
11. Texas A&M University
12. The University of British Columbia
13. University of Arizona
14. University of Florida
15. University of Illinois
16. Arizona State University
17. Boston University
18. Columbia University
19. Duke University
20. Ecole Polytechnique de Montreal
21. Iowa State University
22. Johns Hopkins University
23. Michigan State University
24. National Autonomous University of Mexico
25. North-Carolina State University
26. Princeton University
27. Rutgers University
28. South Dakota State University
29. Syracuse University, Syracuse.
30. Tennessee Technological University
31. Texas Tech University
32. University of California, Berkeley
33. University of Georgia
34. University of Massachusetts, Amherst.
35. University of South Florida
36. University of Utah
37. University of Wyoming
38. Vanderbilt University
Disciplines of Faculty for the Future Fellows Attendees
Speakers
Dr. Najib Abusalbi is the Corporate University Relations Manager for Schlumberger since 2011.

He joined the company in 1984 after three years in postdoctoral research in Physics and Chemistry. Since then, he held multiple positions in product development, operations management, project and program management, as well as recruiting, training and career development, innovation and research, and most recently as university collaboration director for the Reservoir Characterization Schlumberger group of companies.

Najib holds a PhD. in Atomic Physics from Louisiana State University and is recognized as an Advisor in Schlumberger’s Communities of Practice where he has led several communities including Management Disciplines, Project Management, and Knowledge & Information Management.
Mr. Julius O. AKINYEMI

Julius Akinyemi is the initiator of Unleashing the Wealth of Nations project and the Resident Entrepreneur at MIT Media Lab in Cambridge, Massachusetts. Akinyemi, a native of Nigeria, is exploring the commercialization of technology innovation to empower people in developing nations, so that they may invent new opportunities for themselves and their societies in a networked “always-on/always connected” information economy, with an entrepreneurial spirit.

Prior to his residency at the MIT Media Lab, Akinyemi was Global Director of Emerging Technologies for PepsiCo, Inc.; Senior Vice President for Emerging Technologies and Wireless Business Technology for Wells Fargo Bank, where he also served in various areas of the bank including finance, systems, retail and commercial banking. Julius has been involved in various industry groups including membership in the Mobile Finance Steering Committee of the Financial Services Technology Consortium and Bank Information Services (BITS) Financial Services Round-table. He was also involved in the Consumer product Group’s RFID technology item tags project. Julius was an Executive Advisory Board member of Cingular/AT&T Wireless as well as Verizon Wireless companies. Previously he was Director of Finance and MIS for Pan American World Airways (Western Europe Region) based in Paris, France.

Akinyemi is the founder of Applied Technology Solutions, which provides low-cost Internet access in developing countries, and co-founder of Sweden-based ICT4Africa. He was a member of the working team for ICT to eliminate poverty at the UN. He has an MBA from Ohio University.
Nina Dudnik is the founder and CEO of Seeding Labs, a nonprofit organization and USAID partner that ensures scientists in the developing world have the tools, training and network to pursue life-changing research.

Nina earned a Bachelor’s degree in biochemistry from Brown University and a PhD in molecular biology from Harvard University, and worked in agricultural development with the Consultative Group for International Agricultural Research in Italy, Syria, Kenya and Cote d’Ivoire.

Nina has been a Fulbright scholar, an Echoing Green fellow, a TED Fellow and a Boston Business Journal 40 Under 40 awardee, and has been featured on National Public Radio’s All Things Considered, the Boston Globe, WIRED, The Kenyan Standard and Elle Magazine.
Dr. Mary Fernández is CEO of MentorNet (www.mentornet.org), an open social network that provides the opportunity for all STEM students, nationwide and in all levels of higher education, to have access to mentors who are professionals working in STEM fields.

MentorNet’s mission is to foster a prevalent culture of mentoring in STEM that empowers individuals—especially women and underrepresented minorities—to persist and succeed in their fields.

Since MentorNet opened its virtual doors in 1998, Mary has mentored 17 protégés while pursuing her career in computing research.

Before joining MentorNet, Mary had a fascinating, challenging and exciting 17-year career at AT&T Labs Research.

She began her career as a research computer scientist, specializing in database and information systems, and then became a department head of distributed computing research and finally assistant vice president of information and software systems research.

Mary received B.A. and M.S. degrees in computer science from Brown University and the Ph.D. in computer science from Princeton University.

She and her husband have two daughters, who keep her up to date on fashion and technology trends.
Mr. Victor GRAU SERRAT

Victor Grau Serrat is the co-director of D-Lab, an interdisciplinary program at the Massachusetts Institute of Technology that works with students and a global network of innovators to design and disseminate technologies that meaningfully improve the lives of people living in poverty. Through academic offerings, research, and community initiatives, D-Lab advances low-cost scalable solutions that embrace collaborative design, local capacity building, and community-led development. Victor is responsible for the day-to-day operations of the program, provides strategic direction, manages partnerships in Latin America, and oversees corporate relationships. His interests center on the role of technology in economic development and empowering local innovators throughout the developing world.

Victor has 10 years of experience managing technical project implementations in Africa, Asia, and Latin America. Before joining D-Lab, he worked in the telecommunications industry specializing in technology transfer and providing Internet access in developing countries. Victor has participated in several technology-based start-ups, and holds a master’s degree in Telecommunications Engineering from the Polytechnic University of Catalonia and a master’s degree in Electrical and Computer Engineering from the University of Maryland.
Dr. Tarek M. HABASHY

Tarek Habashy received a Ph.D. from the Massachusetts Institute of Technology in electrical engineering.

He joined Schlumberger-Doll Research (SDR) in Fall of 1983 where he has held a number of scientific and managerial positions and is currently a Schlumberger Fellow and the Managing Director of SDR. In this position, he oversees the research activities at SDR with a total population of 155+ scientists and engineers. His main accomplishment is in R&D, related to exploration and characterization technologies for the oil and gas industry. He has led a number of R&D initiatives that resulted in a number of new products, solutions, and intellectual property. Prior to joining SDR, he was a Visiting Research Associate at MIT in 1983.

Personally, he conducts research on electromagnetic waves and fields, inverse scattering theory, multi-physics inversion, antenna theory and design, dielectric and resistivity logging tools and techniques, mixed boundary value problems, and numerical analysis.

He is a member of the editorial boards of Inverse Problems, Wave Motion and the Journal of Electromagnetic Waves and Applications, and a member of the advisory committee board for the book series Progress in Electromagnetic Research. He is a former Editor of Radio Science. He is a Fellow of the Institute of Physics and IEEE, and a full member of Commission B of the International Union of Radio Science.

He holds 40 US patents and has published 10 book chapters, over 150 scientific articles in refereed journals and over 150 conference proceedings papers (list can be found at GoogleScholar & ResearchGate).
Ms. Jennifer HOHMAN

Jennifer Hohman is a Director of Information Technology at ConocoPhillips, the world’s largest independent energy exploration and production company.

She started in the tech industry specializing in large scale technology migrations and development projects at Halliburton Company.

As a consultant for Hewlett Packard, Jennifer shifted her focus to software ideation and invention to automate business processes and provide efficiency for Fortune 100 companies in the financial, manufacturing, health and oil and gas industries.

A fascinating journey led her to a position at ConocoPhillips where she leads a high performing team that interfaces with corporate departments. They provide technology to internal customers with the goal to enable strategic planning and effective decision making for the successful future of the company. Currently she resides in Houston, Texas with her amazing husband, two rambunctious sons and two mischievous English Springer Spaniels.
Ms. Janice HYSLIP

Janice Hyslip is currently the Global Career Planning & Diversity Manager for Schlumberger based in Houston, Texas.

Schlumberger is a global oilfield service company working in over 90 countries around the world with annual revenues exceeding 45 billion. Ms. Hyslip has been 22 years with Schlumberger, working in various Human Resources Manager roles in a Business Partner capacity.

Her career history includes HR Manager North and South America for the Western-Geco division, Global HR Manager for Schlumberger Data and Consulting Services, Global HR Manager for Schlumberger Business Consulting, and Global HR Communications Manager.

As an HR Generalist, Ms. Hyslip has been heavily involved in career development, succession planning and leadership development; working with staff in countries across the globe.

In her current role, she is responsible for global talent practices, leadership development, and diversity.

She holds an MSc in Organizational Development from Pepperdine University and a BScHON in Industrial Psychology from the University of Calgary.
Calestous Juma is an internationally recognized authority on the role of science, technology, engineering and innovation in sustainable development.

He is currently Martin Luther King Jr. Visiting Professor (2014-15) in the Department of Urban Studies and Planning at the Massachusetts Institute of Technology. He is Professor of the Practice of International Development (on leave) and Director of the Science, Technology, and Globalization Project at Harvard Kennedy School (HKS). He is Faculty Chair of the School’s Innovation for Economic Development Executive Program and the Mason Fellows Program. Juma also directs HKS’s Agricultural Innovation Policy in Africa Project funded by the Bill and Melinda Gates Foundation. He has been elected to several scientific and engineering academies including the Royal Society of London, the US National Academy of Sciences, the World Academy of Sciences (TWAS), the UK Royal Academy of Engineering and the African Academy of Sciences. He co-chaired the African Union’s High-Level Panel on Science, Technology and Innovation and is on the board of the Aga Khan University.

His previous positions include: founding Executive Director of the African Centre for Technology Studies in Nairobi; Executive Secretary of the UN Convention on Biological Diversity; and Chancellor of the University of Guyana. He is on the judging panel of the Queen Elizabeth Prize for Engineering and the Africa Prize for Engineering Innovation. Juma holds a DPhil in science and technology policy studies from the University of Sussex (UK) and has received numerous international awards and honorary degrees for his work on sustainable development. His latest book, The New Harvest: Agricultural Innovation in Africa, was published in 2011 by Oxford University Press. He is currently completing two books: Innovation and its Enemies: Resistance to New Technologies and Schumpeter’s Revenge: Innovation, Entrepreneurship and Development.
Dr. Julius KUSUMA

Julius Kusuma is a Principal Scientist at Schlumberger’s research lab in Cambridge, where he leads a small team of scientists working on communication systems for oilfield applications.

Julius received his PhD in EECS at MIT in 2006, during which time he was MIT Presidential Fellow. Prior to MIT he was at UC Berkeley and Purdue. After completing his PhD he joined Schlumberger, first in the Houston TX area and now in Cambridge MA.

He has worked on leading and supporting roles in technology development—both mature and novel projects—in oilfield communication and signal processing.

Outside of oilfield he works on low-energy sensing and biomedical signal processing.
Dr. Harvey F. Lodish

A leader in the field of molecular and cellular biology, Dr. Harvey F. Lodish has identified and characterized numerous surface membrane proteins that play a role in blood development, cell signaling, glucose transport, and lipid metabolism. He earned his AB at Kenyon College and his PhD at the Rockefeller University. A Founding Member of the Whitehead Institute, Dr. Lodish joined the MIT faculty in 1968 and has been Professor of Biology since 1976 and Professor of Biological Engineering since 1999. He is the lead author of the widely used textbook Molecular Cell Biology; the book has been translated into ten languages and the seventh edition appeared in April 2012. He is a Member of the National Academy of Sciences, a Fellow of the American Association for the Advancement of Science, the American Academy of Arts and Sciences, the American Academy of Microbiology, and an Associate (Foreign) Member of the European Molecular Biology Organization.

Dr. Lodish is Chair of the Scientific Advisory Board of the Massachusetts Life Sciences Center, the group charged with oversight of the state’s 10-year $1 billion investment in the life sciences. Dr. Lodish was a founder and scientific advisory board member of Genzyme, Arris, Millennium and Allozyne.
Ms. Paula MCCANN HARRIS

Paula Harris is a ‘87 graduate of Texas A&M University with a degree in Petroleum Engineering. In her 27 year career with Schlumberger Oilfield Services, Harris has held a variety of positions, including Field Engineer managing operations on offshore rigs throughout the Gulf of Mexico, Sales Engineer and North American Recruiting Manager. As Worldwide Training Manager, Harris had the opportunity to develop business opportunities and teams in Europe, Africa, Russia, China, South America, and Australia. Her current assignment is Director of Community Affairs.

Mrs. Harris has received numerous recognitions, including being named Black Engineer’s “50 who make a Difference”, “Key Women in Energy” “Greater Houston Women’s Chamber Woman of Distinction, and the “Women of Color in Technology” awards. She has been appointed to the, University of Houston Teach Houston Board, Project Grad Board, Buffalo Bayou Partnership board member, and a state appointment to the Texas Energy Planning Council. Paula has been profiled in the “Black Engineer”, “Graduating Engineer”, “Money Magazine”, and “Rolling Out”. Paula’s memberships include Alpha Kappa Alpha Sorority, Jack and Jill of America- National Legislative Chair, Executive Leadership Council, The Links Incorporated—National STEM Committee, American Leadership Forum and the Council of Great City Schools.

Mrs. Harris’ first book is “For Sister: The Guide for Professional Black Women” which was published in 2003. Paula formed her own publishing company—Madison House Publishing and has sold thousands of books though speaking engagements, Amazon Books and Borders book stores. Paula’s latest book is a children’s book entitled “When I Grow UP, I Want to Be an Engineer”. Over 30,000 copies of this popular book have been distributed by the Houston Children’s Museum, the Offshore Energy Museum, the San Jacinto Council of Girl Scouts, Houston ISD, Ft Bend ISD, Alvin ISD, and Jack and Jill of America.
Paula was elected to the Houston Independent School District Board of Education in November 2007. She has been an integral part of developing theories of action, policy, superintendent search and overseeing the 1.6 billion dollar district budget. Paula has initiated a program entitled “Houston—Real Men Read” into the Houston ISD and over 200 men now visit classes monthly to read to and positively influence the children in the district. Paula has also been a huge supporter of Science, Technology, Engineering and Math (STEM) programs and has helped to implement initiatives around these subjects that include parent training, feeder pattern programs and increased rigor through professional development. Paula has served as board president since January 2011 and the district has been recognized twice by the White House under her leadership.

She and her husband Dwayne own DPM Investments and are also the proud parents of their 14 year old daughter Madison Serelia Harris.
Mr. Sola OYINLOLA

H. Sola Oyinlola is the Chairman of Africa and Global Head of Sustainability at Schlumberger, based in Houston.

Mr. Oyinlola is also the President of the Schlumberger Foundation, a non-profit corporate foundation, whose flagship program is the Faculty for the Future program, which funds women, from developing countries, to earn their PhDs and post docs in STEM fields in top universities across the world. Today almost 500 women have benefited from this important capacity building program and will be expected to return home to take academic, development and public policy leadership positions in their home countries. Before his current assignment, Mr. Oyinlola was Corporate Vice President and Group Treasurer of Schlumberger Limited.

Mr. Oyinlola has a 33-year career in the oil field, mostly with Schlumberger, spanning senior operations positions across the world, including Managing Director for Nigeria & West Africa, and Managing Director for the Malaysia-Brunei-Philippines GeoMarket. He served as Personnel Manager for Europe, CIS & Africa, and has held several senior financial management positions in business units in the US and Europe. He also worked at the Central Bank of Nigeria for 2 years. In 2014, Mr. Oyinlola was appointed as a non-executive director of GT Bank in Nigeria.

He holds a BSc in Accounting from the University of Ghana, and an MBA from Stanford University. He is an alumnus of the Oxford Institute for Energy Studies.
Dr. Aparna PRABHAKAR

Recently featured as “One of the most dynamic emerging technical woman IBMers”, Aparna Prabhakar is the Technology Innovation Program Manager at IBM Corporate Technical Strategy. In this role she is responsible for managing strategic programs aimed to accelerate delivery of innovative technologies to the hands of IBM’s customers in IBM’s key growth areas.

Previously, Aparna was the China Engineering Solutions Team technical lead, closing semiconductor business with revenue > $400M/yr.

Aparna started her career at IBM T.J. Watson Research Center working on developing research for IBM’s leading edge future technology products. Aparna has multiple patents and publications, a Masters in Mechanical engineering and Bachelors in Electronic engineering.

Aparna lives in NY with her husband and an very active 3 year old boy. They are expecting another baby and are looking forward to working with the changes this will bring.
Dr. Agathe ROBISSON

Agathe Robisson started in Schlumberger in SPRC, Clamart, France in 2000 and joined the Mechanical and Materials Sciences department at SDR in May 2004. Agathe has been focusing her research on mechanical behavior of polymer and rubbers under downhole well conditions (high temperature, presence of solvents), and lately shifted her interest to particle laden fluids. She also manages the Material Research group.

Agathe really enjoys the SDR work environment: interactions with colleagues from diverse cultural and technical background as well as high-level collaborations with academic professors.

Outside of work, Agathe is a mother of two young children, has just started playing the clarinet and is struggling trying to be a good mother, a loving wife and a fun friend.
Eugenie Samuel Reich is a Boston-based science journalist who has covered the physical sciences, scientific integrity, science policy and science publishing for the journal Nature. She has also contributed to Slate, New Scientist, and The Boston Globe and was a Knight Science Journalism Fellow at MIT in 2009/2010.

She is the author of a 2009 book about a case of scientific fraud that took place at Bell Labs in New Jersey at the height of the dot-com collapse. Her investigative reporting on research fraud has led to a number of institutional investigations and she is often invited to speak at universities on the subject.

She is currently working on a second book.
Dr. Thierry SIMIEN

Thierry Simien is the SEED Program Manager (Schlumberger Excellence in Education Development). He has been with SEED since 2006. Simien has a background in geology and expertise in software engineering.

Simien began his career with the European Economic Community (EEC) working with EEC nationals to develop a software engineering environment based on an artificial intelligence kernel. He joined Schlumberger in 1989 as a Software Engineer for Well Services. In subsequent positions and prior to joining SEED Simien moved between management positions in project management, technical training and development, and software engineering, in Paris, France and then in Houston, TX.

With SEED Simien leads the implementation of STEM education programs in underserved communities worldwide where Schlumberger operates. It provides opportunities for Schlumberger personnel to interact with local area families to improve educational opportunities for their children. The programs include professional development workshops for teachers, hands-on science workshops for students and teachers, a science Web site with articles and activities for use in schools or homes, and grants for Internet connectivity and science labs.

Simien graduated from the University of Burgundy in Dijon, France in 1985 with a Ph.D. in geology, and then did post-doctoral work at the University of Miami in Florida. His frequent use of computers to process and analyze high volumes of data during his years of study led him back to school to study software engineering. He graduated with a Master’s degree from the University of Sophia Antipolis, France, in 1987 with a major in artificial intelligence.

Extensive travels throughout his child and adult years exposed Simien to different countries and cultures, and have given him a perspective on how fortunate he has been. He is passionate about helping others get the same opportunities he has had, through education.
Whitehead Member Hazel Sive’s research focuses on development of the vertebrate embryo, using frogs and the zebrafish, as model systems. Her lab studies two major topics.

The first is development of the extreme anterior (front) of the embryo, a unique and important region. Sive pioneered the study of a simple organ, the mucus-secreting cement gland, as a marker for the extreme anterior in frogs and has used this to define the genetic network by which an organ is positioned. Her lab studies development of another extreme anterior organ, the primary mouth (the first mouth opening), which is essential for normal food ingestion and jaw development. As part of this study, her lab has defined essential signaling factors for primary mouth formation.

The second focus is on development of the nervous system, including the genetic basis for formation of correct brain structure. The Sive laboratory defined some of the earliest molecular markers of the nervous system, answering the age-old question of when the embryo decides to make a nervous system.

More recently, her lab has studied how the three dimensional structure of the brain is generated. Her focus includes understanding how the brain bends to pack into the skull, as well as analyzing development of the brain ventricular system—a system of fluid-filled cavities that form an essential circulatory system within the brain. Structural abnormalities of the brain are associated with devastating birth defects. Data from the Sive lab brings together genetics, molecular biology and imaging the brain at single cell resolution in the living embryo. Her lab has analyzed multiple mutants with brain structural defects, and defined novel processes required to build normal brain structure.
Dr. Sive has a long-standing interest in using the zebrafish as a tool to understand human mental health disorders, including schizophrenia and autism.

Sive is a Member of the Whitehead Institute, Professor of Biology at MIT and Associate Dean for the School of Science at MIT. Prof. Sive received her B.Sc. Hons. in 1979 from the University of Witwatersrand in Johannesburg, South Africa and her Ph.D. in 1986 from Rockefeller University, New York; she carried out postdoctoral research at the Fred Hutchinson Cancer Center, Seattle, WA, before joining the MIT faculty in 1991.

She was named a Searle Scholar and received a National Science Foundation Young Investigator Award.
Ron Spangler comes to OCR with 20 years of experience working to turn advanced technologies into real-world products—most recently focusing on the difficult transition from advanced prototype to production-ready product. His work has covered aerospace systems, adaptive optics, sporting goods, semiconductor fabrication equipment, sensors, energy, and building technologies, in roles ranging from R&D engineering through engineering management, general management, product management, and business development.

Most recently, Spangler headed Government Business Development at TIAX LLC, where he developed new technology transition opportunities in energy and defense, including securing external R&D support, negotiating licensing agreements, and selling high-value sensor products. Prior to TIAX, Spangler spend nearly nine years as part of the core team of MIT-spinout Active Control eXperts (ACX), developing new consumer and industrial products based on MIT technology. He was instrumental in the sale of the company to Cymer, Inc., where he served for several years in a product marketing role.

Spangler has also served as VP of Marketing and Business Development at MIT-spinout Mide Technology Corporation, and as a senior electrical engineer at the Itek Optical Systems division of Litton, Inc.

Spangler is a 1994 graduate of MIT, with a Ph.D. in Estimation and Control from the Department of Aeronautics and Astronautics. He holds 14 U.S. patents.
Dr. Claudia URREA

Claudia Urrea has over 20 years of experience in the field of Education and Technology. After completing her graduate studies at the Massachusetts Institute Technology, Urrea worked for 1 year at the Interamerican Development Bank as a consultant in the Education Sector, and 5 years at One Laptop Per Child organization as Director of Learning. At OLPC, she was in charge of designing, developing, and implementing a learning vision for the organization. Claudia Urrea is currently working at the MIT Office of Digital Learning doing research on residential learning experience with online educational materials and blended learning models from theoretical, empirical, and policy perspectives. She recently participated in a Supercharged Reentry Workshop at the Office of Science and Technology Policy at the White House where issues of women on STEM career were discussed.

Claudia Urrea was born in Colombia, where she received an undergraduate degree in Computer Science from EAFIT University. In the mid 90s, she moved to the US, where she received her Master’s degree in Educational Media and Technology from Boston University, and her doctorate degree from the MIT Media Laboratory. Her PhD thesis studied the implications of one to one learning in a rural setting in Latin America. She has helped multiple governments and non-government agencies to empower and support schools and communities of learners to evolve from traditional teaching methods into progressive learning environments.

Dr. Urrea also holds a visiting research position with the Lifelong Kindergarten group at the MIT Media Lab. She has taught several classes at the Harvard Summer Program and Early Childhood Development program at Tufts University. She has consulted with international and multi-sectoral organizations such as the Inter-American Development Bank and Schlumberger Excellence in Education Development-SEED.
Sandeep Verma is a Scientific Advisor in the Mechanical and Materials Sciences Department at SDR.

Dr. Verma received his bachelor’s degree in Chemical Engineering at the Indian Institute of Technology (Kanpur) and a Ph.D. in the same major from the University of Delaware.

His current research interests include data analysis for improved reliability and control of mechanical systems. During his tenure at SDR, he has worked on many interesting topics including zero emission power plant design, CO₂ sequestration, thermal management of electronics used in downhole tools, integrated modeling of surface-wellbore-reservoir systems and thermodynamics of CO₂ mixtures.
Ms. Chasity M. WILLIAMS

Chasity Williams is a visionary and technology thought-leader with over 10 years of experience in the field of Information Technology and Program Management.

After completing her dual undergraduate degrees in Business Administration and Management Information from the University of Southern Mississippi, she moved from her native state of Mississippi in pursuit of a career in Information Technology.

Ms. Williams is now a Senior Information Technology professional specializing in Program Management, Strategic Planning, IT and Service Delivery. She possesses a keen ability to galvanize and engage all levels of leadership—from senior executives and highly technical professionals to end users and consumers to build multi-national, geographically dispersed teams that work collaboratively towards a common goal.

Her work experience encompasses domestic and global engagements throughout public and private sectors. Her most notable work includes large scale public healthcare administration system implementations, aerospace engineering program development, and high-technology product design, development and deployment.

As an Enterprise Strategy Technical Manager for Microsoft, she serves as a trusted business advisor to multi-national Oil and Gas organizations assisting in their alignment of strategic business objectives and key technology investments. She works closely with these organizations to maximize their investment in Microsoft technologies, products and services. She’s known as a relational leader who partners with clients and cross-functional organizations, driving the development of products and services which deliver business value. Ms. Williams is a certified Project Management Professional as well as Microsoft Operations Framework and ITIL. She is currently enrolled in Stanford University for Advanced Program Management.
Ms. Williams has strong commitment to STEM initiatives as she particularly enjoys encouraging young women and minorities to find suitable avenues in the fields of science and technology. She works to bridge the gap for young students who might otherwise see her field as unobtainable. Chasity enjoys travelling around the world and loves the fusion between elegance and innovation. Her close friends have coined her a “Gorgeous Geek” because of her passion for technology and inspiring women to become their “BEST Selves” (inside and out).
Dr. Monica G. WILLIAMS-DAVIS

Dr. Monica G. Williams-Davis has 18 years of progressive administrative experience in non-profit and educational leadership. Currently, she is the Southwest Regional Managing Director for the United States Fund for UNICEF where she is responsible for increasing awareness around the plight of children living in impoverished nations by communicating the U.S. Fund’s mission and having a public presence. Additionally, she works to build organizational capacity and develop strategies to bring resources to the Southwest market including Arkansas, Colorado, Kansas, Louisiana, New Mexico, Oklahoma and Texas. An educational advocate and accomplished fundraiser, Dr. Williams-Davis has devoted the majority of her career to social services and the advancement of underrepresented groups by raising more than $120 million in private philanthropy to support an array of worthy causes for various organizations.

Before joining the U.S. Fund for UNICEF, Dr. Williams-Davis served the Senior Director of Administration & Special Projects at HoustonWorks USA where she led a comprehensive STEM program for underrepresented youth funded by the U.S. Department of Defense. She began her career as a high school English teacher and later held leadership positions at Sylvan Learning Systems, Inc., the Brown Schools, Neighborhood Centers Inc., Texas Southern University, Prairie View A&M University, and Rice University.

A native Houstonian, Dr. Williams-Davis holds a B.A. in Journalism and an M.A. in Communications from Texas Southern University, and a Ph.D. in Educational Leadership from Prairie View A & M University.
Fellows’ Bios
Melanie ABONGWA

Melanie Abongwa was born, raised and attended school in Limbe, South West Cameroon. She attributes her academic success to the education and training she received from an all-girls boarding school where she achieved good results in her intermediate level examinations and then in science subjects at advanced level.

Melanie obtained a BSc in Biochemistry in 2005 from the University of Buea, Cameroon, and was awarded for being the best female biochemistry undergraduate student in her year. In 2009 she gained an MSc in Biochemistry from the same university, and received another award for being the best postgraduate student in biochemistry in her graduating class. Melanie worked as a research biochemist as part of a drug discovery project in the Biotechnology Unit of the University of Buea, and in 2012 began her research towards a PhD in Toxicology at Iowa State University, United States.

Growing up in a third world country, Melanie was acutely aware of the parasitic nematode worm infections that plague people in her society, the majority of whom cannot afford proper healthcare or conventional drugs. Her research involves the study of proteins in the cell membranes of nematode parasites as potential drug targets; examining the mode of action of anthelmintic drugs that target these membrane proteins using electrophysiological techniques; and identifying mechanisms of resistance. Melanie hopes that her studies will identify natural products from medicinal plants that alone or in combination could have enhanced selective activity against nematode parasites.

After her research in the United States, Melanie plans to teach and perform research at the University of Buea. As a qualified toxicologist she expects to be able to contribute to the areas of biotechnology and pharmacology across academia and within pharmaceutical and food industries in Cameroon as well as more widely across the globe.
Olanike ADEYEMO

Olanike Kudirat Adeyemo was born and raised in Ibadan City, Nigeria, and is one of eight children. Her parents strongly believed that education was the best legacy and set her on this path from an early age. At her secondary school, students were allotted subjects based on their academic performance—leading her to study Physics, Chemistry and Biology. Following this, Olanike entered the veterinary profession, where she then gravitated into academia.

Olanike’s interest in veterinary medicine was enhanced by her training at the University of Ibadan, where she obtained a Doctor of Veterinary Medicine (DVM), Master of Veterinary Public Health (MVPH) and a PhD in Aquatic Epidemiology and Toxicology. During a two-year period as an associate of the UK-based Leadership for environment and development (Lead) international program, she was tutored in the basics of effective leadership, systems thinking, negotiation skills, conflict resolution and issues of sustainability and development.

Aquaculture has markedly increased in Nigeria, and Olanike believes this has resulted in a series of developments detrimental to the environment and to human health. Her research, therefore, focuses on aquatic epidemiology involving the health assessment of fish, environmental health, and human health issues related to fish food safety.

On her return to Nigeria, Olanike intends to teach at the University of Ibadan, where she will continue her focus on the management of fish disease and highlighting the public health risks associated with the consumption of contaminated seafood. She plans to mentor the next generation of researchers—especially women—in the field of aquatic epidemiology and fish food safety, continuing her efforts in the area of sustainable food security.

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Vibhuti AGRAWAL

Vibhuti (Vibhu) Agrawal was born in Delhi, India, and was raised in a large family that included her grandparents, uncle and aunt. Her mother, who had a PhD (which was very rare among Indian women at the time), died of cancer when Vibhuti was 12 years old. She remembers her mother saying “Vibhu, you should always strive to stand on your own feet so that you are not dependent on anyone else for your sustenance”. These words motivated her towards a career in science, and a particular interest in the fight against cancer.

Vibhuti has a B.Tech and M.Tech in Biochemical Engineering and Biotechnology from the Indian Institute of Technology (IITD). During her studies she gained several awards and had summer internships at Imperial College, London, United Kingdom and the National Institute of Physiological Sciences, Japan. She also studied as an exchange student at the National Institute of Scientific Applications, Lyon, France. She began her PhD research into cancer in 2012 at the Massachusetts Institute of Technology (MIT), where she also worked as a Teaching Assistant.

One million people in India are diagnosed with cancer annually, of which 70% die within their first year after diagnosis. The majority of cancer deaths are due to metastasis, the process that allows tumor cells to spread to other areas of the body. It is caused by the transformation of epithelial cells into migratory and invasive mesenchymal cells, and Vibhuti’s PhD research aims to study the mechanism that underlies this process to identify therapeutic targets to inhibit cancer metastasis. The studies will use a state-of-the-art approach that has been perfected at MIT for assessment of the dynamics of this process.

After completion of her PhD research, Vibhuti plans to return to India to become a professor and establish her own research laboratory at one of the leading engineering institutes in the country.
Unaiza AHSAN

Unaiza Ahsan was born in Karachi, the largest and most populous metropolitan city in Pakistan. She attended one of the best schools in the area and achieved good grades in her intermediate examinations. This success propelled her to pursue advanced level examinations at high school, which laid the foundations of her engineering studies.

Unaiza attended the NED University of Engineering and Technology, Karachi, where in 2009 she obtained a BEng in Telecommunications. She decided that rather than simply using computer programs, she wanted to study the science behind programming, which led her to pursue an MSc in Computer Systems, also at NED University. Her final MSc project investigated the field of Computer Vision, especially human motion tracking.

She is pursuing her PhD research at the Georgia Institute of Technology, United States, where Unaiza is focusing on the application of Computer Vision techniques in Computational Social Science. She is particularly interested in exploring social multimedia such as images, videos, audio and text to understand patterns of how these are used and shared on the internet. She is currently working on Crowd Event Detection/Clustering, and her goal is to automatically discover media related to particular events that have been captured by a large number of people.

After completion of her studies in the United States, Unaiza plans to return to Pakistan and join its academia as a teacher and researcher. She hopes to contribute to improving the research infrastructure and research methodologies in the country, and to motivate and mentor students to pursue their dreams and research goals.
Esraa Al-Sharoa was born and grew up in Irbid, a city in the northern part of Jordan. Her parents were both well educated, which influenced her both socially and academically and she developed an interest in electronic engineering from a young age.

Esraa gained a BSc in Electrical Engineering from the Jordan University of Science and Technology (JUST) in 2005. In that year she also married her husband, who was pursuing a PhD at Michigan State University (MSU) in the United States. This enabled her to continue her own studies at MSU, where in 2007 she received an MSc in Electrical and Computer Engineering. Since 2009 she has been back in Jordan working as a lecturer in JUST’s Electrical Engineering department, and also contributing as a co-investigator to a project focused on developing algorithms to diagnosis asthma from cough sounds.

The research project at MSU uses signal processing algorithms to analyze time-varying functional networks in the brain. This work is in a multidisciplinary field that incorporates specialties such as medicine and engineering. It is also a topic in which few people are currently engaged, and therefore Esraa expects to be able to make an original contribution to this field.

After completing her PhD, Esraa plans to apply the knowledge and experience gained at MSU in her lecturing at JUST, where there are currently no women in its Electrical Engineering department. She looks forward to setting an example to other women in her country, demonstrating that education is for all regardless of gender, and that it is possible to be both a mother and a professor.
Herdeline Ann ARDOÑA

Herdeline Ann Ardoña was born in the Philippines and grew up in Valenzuela City, Metro Manila. From a young age, she got the motivation to pursue chemistry from her grandmother, who is a chemical engineer. Growing up with her mother who is a nurse, she was inspired to direct her research towards biomedical applications.

Herdeline gained her B.S. in Chemistry (summa cum laude) from the University of the Philippines-Diliman in 2011. During this time, her undergraduate thesis work was recognized and awarded by the University and the Department of Science and Technology in the Philippines. Immediately after graduation, she worked as a chemistry instructor at the University. Since 2012, Herdeline has been a graduate student in the Chemistry department of Johns Hopkins University, United States, and is affiliated with its Institute for NanoBioTechnology.

Her PhD studies focus on the use of synthetic organic materials, investigating their properties for biomaterials applications. She is currently in a research group that synthesizes and designs peptide-based conducting hydrogels that can be used as a scaffold for electrically-sensitive tissues such as nerves. This can potentially help improve the very slow rate of nerve regeneration in the millions of people annually who suffer from peripheral nerve injury. This research has the potential to develop an injectable cell scaffold that could stimulate a faster rate of nerve regeneration for patients.

After completing her PhD studies, Herdeline plans to collaborate and expand the biomaterials research at the University of the Philippines. She hopes to become a professor in the field of materials chemistry, specifically focusing on biomaterials.
Nongnuch ARTRITH

Nongnuch Artrith was born in Maha Sarakham in the northeast of Thailand. She has one sister and two cousins, whose parents shared her family house when she was a child. Her parents own some land and a farm, and she often helped her mother to sell their agricultural products in the local market after school.

Nongnuch gained a place at Khon Kaen University, Thailand, where in 2001 she obtained a BSc in Physics. Although keen to pursue her studies, she did not have the necessary funds so began work in the software department of a company. Three years later, Nongnuch was awarded a fellowship from Kasetsart University, Bangkok, where she studied computational chemistry in its NANOTEC Center of Excellence and in 2008 received an MSc in Physical Chemistry. She then joined a research group in the Department of Theoretical Chemistry at Ruhr-University Bochum (RUB), Germany, as a PhD student. The research project was the development of neural-network potentials for solids and surfaces, in particular for the copper/zinc oxide system that is an efficient catalyst for methanol synthesis. Nongnuch completed her PhD in January 2013.

When she moved to Bankok for her MSc studies, Nongnuch was shocked by the environmental pollution, leading to her interest in cleaner energy and reduced greenhouse gas emissions. Researchers at MIT have demonstrated that gold-copper alloy (AuxCuy) nanoparticles are oxidation-stable catalysts for the electrochemical reduction of CO₂ to methane, a prospective synthetic fuel that is also used in industrial processes. As a postdoctoral fellow at MIT, Nongnuch will investigate the electrochemical CO₂ reduction over AuxCuy nanoparticles through theoretical and computational methods.

After her studies at MIT, Nongnuch plans to share her new knowledge with research groups in Thailand and to teach at Kasetsart University and Suranaree University of Technology.
Srinidhi Balasubramanian was raised in Mumbai, India. Her father worked as an IT consultant and also as a professor in a management school. Her mother was a high school science teacher and home tutor. Srinidhi’s passion for teaching began at a young age, when she assisted her mother with the education of younger children.

Air quality in Mumbai can be poor, which reinforced Srinidhi’s interest in environmental sciences, and atmospheric phenomena in particular. She chose to pursue a career in civil engineering, considering it a key component in developing solutions to environmental challenges faced in a developing economy.

Srinidhi attended Mumbai University, where in 2008 she received a BEng in Civil Engineering. In 2010 she completed a Masters in Technology in Environmental Science and Engineering at the Indian Institute of Technology Bombay with a thesis entitled “Assessment of Indoor Air Quality in Schools”.

The PhD research in Illinois focuses on the impacts of ammonia (NH3) emissions from agricultural fertilization on atmospheric particulate matter (PM) formation and nitrogen deposition by improving the capabilities of air quality models to predict these phenomena. It is hoped the research will help identify sources for designing cost-effective strategies for controlling regional PM formation, studying ecological effects of ecosystem deposition, and assessing implications of changing land-use relevant to agricultural productivity and climate change.

After her PhD studies, Srinidhi plans to be a science educator and researcher at the Indian Institute of Technology Bombay. She intends to develop a framework to work with local schools to promote environmental awareness. She would also like to establish a Society of Women Engineers chapter with a special focus on providing support to minimize dropout rates amongst female schoolchildren.
Blessing Bassey was born in the northern part of Nigeria. Her parent’s dedication to see her and her four siblings succeed was a great motivating factor for her.

Blessing attended the University of Calabar, where in 2007 she gained a BSc in Genetics and Biotechnology. During her undergraduate studies, she received training as an intern in the Central Biotechnology Laboratory, International Institute of Tropical Agriculture (IITA), Ibadan. Inspired by her internship experience, Blessing aspired to pursue a career in genetics and biotechnology. After graduation, she returned to the IITA laboratory as a research assistant, where she engaged in research strategies aimed at investigating and improving the genetic make-up of biological systems using molecular biology methodologies and analysis techniques. Blessing began her postgraduate studies at the University of Manchester, United Kingdom, where in 2010 she was awarded an MSc in Biotechnology. Her research was focused on differentiating benign renal cancer cells from their metastatic counterparts using Fourier Transform Infrared spectroscopy.

Breast cancer is the most common disease among females worldwide, and a leading cause of cancer death amongst women. Blessing’s PhD research is particularly focused on a subtype of breast cancer termed triple negative breast cancer (TNBC), which is highly aggressive and associated with a high mortality rate. Blessing is specifically interested in TNBC, because young premenopausal women of African ancestry are especially prone to TNBC. Blessing hopes her research will help to shed light on the reason for this disparity so that better targeted therapeutics can be developed leading towards a cure.

After completion of her PhD, Blessing plans to return to the University of Calabar to utilize her knowledge and teaching expertise to impact the next generation of scientists in the field, particularly women. She also hopes to continue working in cancer research.
Rachana BHATTARAI

Rachana Bhattarai was born and raised in Nepal, and is the third child in a family of two boys and two girls. She has been interested in science since primary school.

Rachana graduated in 2007 with a Bachelor degree of Veterinary Science and Animal Husbandry (BVSc & AH) degree from Tribhuvan University, Nepal. She also completed a six-month internship at Nepal’s Central Veterinary Laboratory, where she researched mycotic infections of broiler chickens from in and around the Kathmandu Valley. The findings of the study revealed the most common fungal agents and their associated hepatic, renal, and respiratory lesions. Supported by several scholarships, including an International Fellowship from the American Association of University Women, Rachana moved to Texas A&M University, where she completed MS in Epidemiology in 2010.

Rachana’s PhD research focuses on the application of geographic information systems (GIS) and burden of disease estimation methods to evaluate the epidemiology of zoonotic and infectious diseases. Her internship with the Central Veterinary Laboratory made her familiar with the activities of government agencies working on disease surveillance and control, and taught her the importance of epidemiology. Better understanding of the disease dynamics, natural history, and other determinants are the most useful tools to control and manage diseases—which is important for both human and animal health. Advanced technologies such as GIS provide increased capability for research aimed at addressing these issues.

After she finishes her studies, Rachana plans to further her research in the field of zoonotic disease epidemiology, and to teach at an institution of veterinary or human medicine.
Maria Lorena CARLO UNDA

Maria Lorena Carlo Unda was born and raised in Ecuador. Her late father was an accomplished telecommunications engineer and she credits his example as her inspiration to pursue a career in technology.

Lorena was awarded a scholarship by the Escuela Superior Politecnica del Litoral (ESPOL) in Guayaquil, the largest city in Ecuador, for a BSc in Computer Engineering. Her undergraduate thesis was based on an internet banking system she developed for the Banco de Guayaquil, where she worked during her studies. She subsequently worked as an instructor and software projects coordinator at the Electrical and Computer Engineering Department of ESPOL, where she also gained a Masters in Business Administration (MBA). In 2006 she was awarded a Fulbright Scholarship for an MSc course in Computing, specializing in graphics and visualization, at the University of Utah, United States. Her Masters’ project was related to biomedical informatics, and she later gained an MA in this subject at Columbia University, where she is currently studying for a PhD. Lorena served as a founding Chair of the IEEE Women in Engineering Affinity Group of Ecuador, which aims to motivate young women to pursue careers in science and technology.

Studies in resource-poor settings have demonstrated that timely access to complete and accurate data can improve healthcare delivery. The PhD research focuses on global health informatics, and Lorena is hoping to use information technology to find new solutions to problems in healthcare in low-and middle-income countries. The work uses data from projects related to reducing the incidence of malaria in Ghana.

Following her PhD, Lorena plans to teach and research at ESPOL while continuing her involvement in mentoring and motivating young women to study science and technology.
Supawadee Chawanthayatham is from Isan province, one of the poorest regions of Thailand. Growing up there exposed her to a number of serious public health problems such as liver cancer, hepatitis, HIV/AIDS, TB, dengue fever and malaria. She worked as a chef in her mother’s restaurant, and has found that the skills of cooking transferred easily to a laboratory.

Supawadee studied for a BSc in microbiology at Ubonratchathani University, Thailand, graduating in 2006. She was then admitted to the Biotechnology Program at Mahidol University, Bangkok, where she received an MSc. For her PhD studies she chose to attend Chulabhorn Graduate Institute, Bangkok, as it had launched a new graduate program focused on public health. Some of the courses were taught by an international faculty from leading United States universities. During her PhD studies she was awarded an internship at the Massachusetts Institute of Technology (MIT) and also collaborated with a world-leading interventional epidemiologist from Johns Hopkins University.

Her PhD in Environmental Toxicology, awarded in 2014, was centered on Supawadee’s interest in the prevention of diseases caused by environmental chemicals. Rural Thailand has almost 33,000 cases of liver cancer annually, and her research focused on Aflatoxin B1, a food-borne toxin that acts as a potent liver carcinogen in concert with hepatitis viruses. Food contaminated with aflatoxin is also associated with growth stunting and related cognitive and developmental impairments in adults. Using mice as a model of disease, she found that they are hypersensitive to aflatoxin exposure before birth compared to exposure later in life. As a postdoctoral fellow she intends to continue this research to determine why exposure in early life appears to be more biologically detrimental.

Following her postdoctoral research at MIT, Supawadee hopes to become a faculty member at a leading research university in Thailand.
Ushashi DADWAL

Ushashi Dadwal’s father was an Officer in the Indian Army and moved every two years to a different part of the country—taking his family with him. This experience of constant movement exposed Ushashi to a large variety of places and lifestyles, and she has become used to exploring the area she lives whenever she has any spare time.

Ushashi completed an engineering B.Tech in Biotechnology at the Shanmugha Arts, Science, Technology and Research Academy (SASTRA), Tamil Nadu, India. The course included an internship at the Sreedhar Bhatt laboratory, where she learned basic plant biotechnology techniques. Further experience was gained as an intern in the Research and Development Department of Phytotech, a commercial company that manufactures and distributes products to the plant tissue culture, plant biotechnology, and plant science markets.

In 2010, Ushashi began an internship at the Harvard Institutes of Medicine, Boston, United States, supported by a scholarship from SASTRA. In addition to supervising a small laboratory animal facility, she studied the molecular pathophysiology of Hypoxia Inducing Factor HIF1α (factors that respond to changes in available oxygen in cells) to quantify the level of HIF1α in kidneys with acute renal injury. Ushashi then worked in a nanomedicine laboratory at the Massachusetts Institute of Technology (MIT) studying differentiation in stem cells regulated by glycosoaminoglycans (sugar compounds in the extracellular matrix of cells).

Ushashi’s PhD work is in Dr. Julie Sterling’s laboratory at the Bone Center for Biology at Vanderbilt University. She is studying the biological effects of bone metastasis (the invasion of cancer into bone). This study aims at identifying factors that induce tumor mediated bone destruction and determine therapeutics to prevent bone metastasis.
Stefani DARYANTO

Stefani Daryanto was born in Kudus, a small town in the province of Central Java, Indonesia. She was raised and went to high school in Semarang, the largest city in the province. Her father taught engineering at the local university, and he was her inspiration to pursue scientific research and follow a similar career path.

Stefani gained a BSc, majoring in Agronomy, from Bogor Agricultural University, Indonesia. With the support of grants from the Australian Development Scholarship (AusAID), she attended the University of New South Wales, Australia, where in 2003 she completed an MSc in Food Technology and in 2013 a PhD in Soil Ecology. During this time Stefani was also a Lecturer in the Department of Environmental Engineering at Surya University, Indonesia. Most of her studies to date have related to maintaining soil quality, including conserving or improving the properties of soils prone to degradation as a result of agricultural activities.

The postdoctoral research in the United States is investigating the effects of drought in combination with different land management strategies on soil nutrient export in agricultural systems. Stefani has a broad interest in plant/soil interactions and her research focuses on the need to increase agricultural productivity without placing too much pressure on the environment. Minimizing the input of chemicals without threatening agricultural productivity is essential to maintain the delicate balance between sustainable food production and population growth, and is relevant to populations across the globe.

After completion of her studies, Stefani plans to teach at Surya University. She hopes to develop her own research laboratory and share her experience and knowledge with as many students as possible. She also intends to encourage young people to pursue international scholarships that can lead to new perspectives and opportunities, since financial circumstances should not prevent someone from gaining higher education.
Eleni Degaga was born and brought up in Addis Ababa, Ethiopia. Eleni attended the Bahir Dar University, Ethiopia, where in 2006 she gained a BEd in Physics and was the only female graduate in the department. After working for 10 months as a faculty in the physics department, travelled to the African Institute for Mathematical sciences in South Africa and received postgraduate diploma in mathematical sciences.

While at AIMS she decided to study for a PhD focusing on experimental biophysics, directly connecting her passion for quantitative science with global problems relating to human health. Eleni moved to Syracuse in 2008, and gained an MSc in Physics in 2010. Human cells are exposed to various mechanical forces, mechanotransduction deals with the translation of these forces into both physical and biochemical signals. Mechanotransduction modulates important functions such as cell migration, ubiquitination, protein synthesis, programmed death (apoptosis), embryonic development and cell adhesion. Many of the mechanisms by which mechanical forces lead to particular cell outcomes are not well understood.

The central hypothesis of Eleni’s PhD research shows that proteins called spectrins, which are integrated to the cell membrane skeleton, can turn force-induced deformations into a physical and biochemical signal and they also play a role in transducing traction forces that cells exert on their environment. Her research would have several implications in the field of mechanotransduction. Eleni completed her PhD in August 2014 and currently started working as a postdoctoral fellow in the physics department at Georgetown University working on growth cone mechanics and motility using traction force and total internal reflection microscopy. There is currently no active experimental soft condensed matter and biophysics research lab in Ethiopia.

After obtaining few more years of research experience, she plans to teach at Addis Ababa University and start a research lab to fill this gap.
Laura DOMINGUEZ DUENAS

Laura Dominguez Duenas was born, and went to secondary school, in Mexico City.

Laura studied chemistry at the Universidad Nacional Autónoma de México (UNAM) in Mexico City, where she was encouraged to conduct research and become a scientist. She went to graduate school at the UNAM Institute of Biotechnology in Cuernavaca, where she studied for a Masters degree in Biochemistry, focusing on the molecular dynamics of the transition between the two states of glucosamine-6-phosphate deaminase. She was selected by the UNAM Academic Excellence Support Program to represent the school as an exchange student at the University of California, San Francisco (UCSF), United States, where she completed her Master’s studies. Laura then returned to Mexico City to start PhD studies at the UNAM School of Medicine, where she was selected to represent UNAM as an exchange student at Boston University, United States. She completed her PhD in 2011.

The objective of Laura’s postdoctoral research is to exploit the growing power of computer simulations to help understand the causes and mechanism of protein aggregation inside cells. Knowledge of the detailed process of protein aggregation is crucial for understanding the development of illnesses such as amyloidosis and neurodegenerative disease, how and why aggregation occurs, and what could be done to prevent it.

Laura’s goal is to become a Professor at UNAM, which she considers to be the most prestigious university in Mexico.
Haydee María DOMÍNGUEZ TEJO

Haydée María Domínguez Tejo was born and raised in Santo Domingo, Dominican Republic. Both her parents studied chemistry, and instilled a love for science and learning in their children.

Haydée’s family moved to Colombia in 1996, giving her the opportunity to study Marine Biology, a career that is not offered in the Dominican Republic. She obtained a BSc in Marine Biology with honors from the Universidad de Bogotá Jorge Tadeo Lozano in 2002. She then studied at the Free University of Brussels and the University of Antwerp, Belgium, where she gained an MSc in Ecological Marine Management with honors in 2005. Following this, Haydée worked for five years as a Professor-Researcher at the Centro de Investigaciones de Biología Marina of the Universidad Autónoma de Santo Domingo (CIBIMA-UASD), Dominican Republic. In 2010 she was awarded a Fulbright Scholarship to start her PhD program at Duke University, United States.

In Small Island Developing States, food security and local economies are tightly linked to marine ecosystems. One promising strategy to promote the sustainable use of marine resources is to engage local communities in management and conservation efforts that positively affect their livelihoods. As the focus of her research, Haydée has chosen the endangered Antillean manatees of Hispaniola Island, which encompasses both the Dominican Republic and Haiti. The Antillean manatee is a flagship species with the potential to improve the livelihood of local communities. By protecting these manatees and their habitat, communities can generate income through tourism and sustainable fisheries.

Upon completing her PhD studies, Haydée plans to return to the Dominican Republic and resume her work at CIBIMA-UASD, where she will continue designing and directing research and conservation projects on marine mammals and marine protected areas. She hopes to continue involving students in the implementation of these projects, and mentoring young women in the sciences.
Nothabo DUBE

Nothabo Dube was born and raised in Nkayi, Zimbabwe. Her passion for education was inspired by her parents, who were both school teachers. With good results from high school she was accepted at a teacher’s college in Harare, the capital of Zimbabwe. Based on her success in Mathematics, the college selection panel decided she should major in the subject, and after graduating she spent five years teaching Mathematics in Bulawayo, Zimbabwe.

In 2003, Nothabo decided to further her education and applied to the National University of Science and Technology (NUST) in Bulawayo where, in 2007, she gained a BSc in Applied Mathematics. While she was an undergraduate, she had a research internship at the Biomedical Research and Training Institute, Harare. In 2009 she gained an MSc in Industrial Mathematics for her work on a mathematical model for a cell-based vaccine for the control of tuberculosis. She then lectured in NUST’s Department of Applied Mathematics. In 2011, supported by various scholarships, Nothabo began her PhD studies in the Department of Mathematics and Statistics, Texas Tech University, where since 2013 she has also been a Teaching Assistant.

Nothabo’s PhD research is on the development and application of statistical methods for analysis of problems in genetics, focusing particularly on the genome of maize. The development of maize species that are drought resistant and high in nutritional value will help alleviate food insecurity for rural populations that depend on the crop as their staple diet. She hopes to conduct the research in collaboration with agricultural scientists from crop research stations in Zimbabwe.

On completion of her PhD studies, Nothabo plans to return to teaching at NUST. She hopes her research will help inform policy towards issues that will improve Zimbabwean society and looks forward to serving as a role model for young women in sciences.
Bibi Sehnaaz Begum DURGAHEE

Bibi Sehnaaz Begum Durgahee was born in a small village on the east coast of Mauritius, where her father manages a bakery. He encouraged her to pursue higher education and provided the support she needed to accomplish this goal. Bibi has been interested in science since high school. She loves technology and describes herself as a pragmatist—always trying to find the most efficient solutions to problems. She is the only child in her family to work towards any graduate studies.

Bibi completed a B.Eng. in Computer Science and Engineering at the University of Mauritius. Her final year project was entitled “Simulation of a web-based slot reservation system for hospitals in Mauritius using different database management system platforms”. After graduating, she worked as a web developer and software engineer before pursuing an MSc in Internet Computing at the University of Surrey in the United Kingdom. Her dissertation project was in the area of knowledge management in bioinformatics, which provided her with new insights into the issues arising from the evolving terminology used in molecular biology. Bibi returned to Mauritius where she became a university lecturer teaching a variety of software related topics, often involving bioinformatics.

The PhD research is focused on building a semantic lexicon model for characterizing sublanguages using shared lexicon and semantic features in clinical texts. The focus is towards building more generalizable and sharable natural language processing solutions for making better health care predictions. Ultimately, these predictions will be integrated with a number of life science data sources to allow researchers and physicians to identify patients with specific needs and hence provide patient-oriented healthcare and services.

After completing her PhD, Bibi will resume her academic position at the University of Mauritius. She aims to promote research in biomedical informatics in her country.
Fikirte Gebresenbet ERDA

Fikirte Erda was born and raised in Addis Ababa, the capital of Ethiopia. She decided to become a conservationist after visiting Awash National Park, one of the National Parks of Ethiopia, while she was a junior college student. The park includes impressive waterfalls, hot springs, a variety of volcanic landscapes, and diverse wildlife. However, the establishment of the park in 1966 had a number of negative consequences on the livelihoods of indigenous people, and human-wildlife conflicts were inevitable. Fikirte identified gaps in biodiversity conservation and was determined to help address a lack of research and regulations to handle human/wildlife conflicts.

In 2005, Fikirte obtained a BEd in Biology from Jimma University, Ethiopia. She then spent a year teaching at a middle school in Addis Ababa before joining the Department of Biology of Addis Ababa University, where in 2008 she gained an MSc in Dryland Biodiversity. Following this she worked in a research team and taught in the Department of Wildlife and Ecotourism Management of Mekelle University, Ethiopia. In 2010 she received a post-graduate diploma after studying International Wildlife Conservation Practices at Oxford University, United Kingdom, supported by scholarships from the Panthera Foundation (United States) and the Wildlife Conservation Research Unit (United Kingdom).

Fikirte obtained a teaching assistantship and graduate fellowship from the Department of Zoology, Oklahoma State University, United States to begin her PhD research. She is investigating the conservation of large carnivores, particularly lions in the Kafa Biosphere Reserve, southwestern Ethiopia, which provides a unique mountain forest habitat for lions. She is also investigating how to avoid or reduce human/lion conflicts that have serious implications on the local population.

After her PhD, Fikirte will return to teaching at Mekelle University to create a center focused on wildlife conservation and train fellow Ethiopians to be leading conservationists and field biologists.
Deepti GOPALAKRISHNAN

Deepti Gopalakrishnan was born in Secunderabad and brought up in Hyderabad and Madras. Her 10th grade chemistry teacher made organic chemistry interesting and enjoyable, stimulating an interest that has continued to develop ever since.

Deepti studied Chemistry in a five-year program at the Indian Institute of Technology Bombay (IIT Bombay), Mumbai, India, where she obtained her first research experience in an organic methodology laboratory. She was awarded a summer research fellowship by the Indian Academy of Sciences, which supported research at the Institute of Life Sciences. Deepti had an opportunity to work in the laboratory that synthesized compounds with the potential to treat diabetes, and as part of her thesis she contributed to a methodology to prepare fused organic compounds. These experiences led her to pursue a doctorate in organic chemistry, and in 2010 she enrolled in the Department of Chemistry and Chemical Biology at Cornell University.

The PhD research focuses on synthesizing covalent organic frameworks: an emerging class of ordered, high surface-area materials that can sense trace quantities of low-volatility explosives. These polymers are highly sensitive to RDX, detecting as low as attograms of RDX. These explosives pose a safety threat throughout the world, and sensitive, inexpensive, and operationally simple compounds are needed to identify improvised explosive devices, abandoned landmines, and individuals intending to cause harm.

After completing her PhD, Deepti plans to continue her training in organic materials chemistry with post-doctoral studies. She then intends to apply for a faculty position at IIT Bombay and set-up a research laboratory there. Deepti also hopes to conduct outreach programs around Mumbai to promote science among children ranging from elementary to high school age.
Masilin GUDOSHAVA

Masilin Gudoshava was born and brought up in Bulawayo, the second largest city in Zimbabwe. Unlike many families in the country, her parents provided all their children with equal opportunities at school, and encouraged her to pursue her interest in mathematics.

Masilin graduated from the National University of Science and Technology (NUST), Bulawayo, in 2006 with a BSc in Applied Mathematics. She was then awarded a staff development fellowship at Great Zimbabwe University (GZU), where in 2008 she gained an MSc in Industrial Mathematics. Following this she joined GZU’s department of Natural Sciences where she taught mathematics and statistics courses. In order to improve her teaching techniques and skills, Masilin enrolled in the GZU Postgraduate Diploma in Higher and Tertiary Education, which she successfully completed in 2011. She began her PhD studies at North Carolina State University, United States later that year.

Zimbabwe and other parts of Southern Africa have, over recent years, received erratic levels of rainfall, and these discrepancies are likely to worsen due to climate change. Masilin is studying climate science, focused mainly on the Lake Victoria Basin, East Africa, which supports approximately 40 million people through fisheries, agriculture, hydroelectric power and transportation. The region experiences high thunderstorm activity, and weather related fatalities are estimated at between 3,000 and 5,000 per year. The research involves developing a more reliable forecasting system for precipitation using numerical weather models.

After completing her studies, Masilin interns to return to her position as a faculty member in the Applied Mathematics department at NUST. She hopes to work with farmers and other scientists to develop a framework that will increase food production, and also plans to work with the meteorological department towards more accurately forecasting precipitation frequency and intensity during dry and wet seasons.
Ruirui HAN

Ruirui Han was born and grew up in the city of Xiangyang in China, a city with a long history. She was the only child in her family and her parents devoted a lot of time to her education. She began to show a great interest in science as a junior middle school student, and did well in all her science courses.

Ruirui chose Electrical Engineering for her BSc, and then studied towards an MSc at Tsinghua University, China. The MSC thesis project was on microelectromechanical (MEMS) and piezoresistive pressure sensors, which are used in tire pressure monitoring systems (TPMS). Ruirui was particularly interested in applying basic theories relating to piezoresistive pressure sensors to achieve high-accuracy simulation, efficient fabrication and products with good performance. The work involved optimization of simulation methods and MEMS fabrication processes, and involved many tests of piezoresistive pressure sensors.

The PhD studies are being performed in the School of Earth and Space Exploration at ASU, where Ruirui is an exploration systems design student. Her research focus is on MEMS for Earth and space applications, specifically investigating pH value sensors used for studying microbiology in harsh environments, which is important in understanding life’s origin and evolution.

After completion of her PhD studies, Ruirui plans to return to Tsinghua University to teach in its Institute of Microelectronics. She also hopes to continue her research on MEMS for Earth and space applications and contribute to China’s microelectronic and micro-sensor manufacturing industry and space exploration programs.
Afrin Hossain was born in Naogaon, a district in the north of Bangladesh. Her father was a civil engineer, and through his work took his family with him to many different cities in Bangladesh. Afrin feels that this frequent travelling and acclimatization to new places and people was critical to the person she is today.

Both of her parents encouraged Afrin to pursue a career in engineering, and with the support of technical, compensatory and merit scholarships from the Bangladesh University of Engineering & Technology she obtained a BSc in Civil Engineering in 2009. She then worked as a research assistant at the Bureau of Materials Testing, Research, Training and Consultancy at the University of Asia Pacific, Dhaka, Bangladesh. In 2011, Afrin was awarded an International Partial Tuition Scholarship (IPTS) that enabled her to study at the University of British Columbia (UBC), Canada, where in 2013 she gained an MSc in Structural Engineering.

Afrin stayed at UBC to pursue a PhD in the Department of Wood Science in the Faculty of Forestry. Her research is focused on seismic design of timber and concrete hybrid structures using cross-laminated-timber (CLT) and self-tapping-screws (STS). She was inspired to work in this field through the observation that there is a lack of sustainable technology and expertise in Bangladesh to reduce loss of life and damage from earthquakes. Afrin plans to perform mid-scale testing of novel CLT-STS wall and floor assemblies under seismic loading in a laboratory. These assemblies will then be modeled using finite element software and the final goal is to use the experimental and analytical results to develop design guidance and equations for building CLT-STS wall and floor assemblies.

Upon completion of her PhD studies, Afrin intends to return to the University of Asia Pacific to be a part of its academic staff and to continue her research.
Ana Huaman Quispe was born in Lima, Peru, in a large family composed of one older sister, five step-sisters and two step-brothers. She is the first member of her family ever to graduate from university.

Ana has won many academic awards and was twice a silver medalist in Peru’s National Mathematics and Chemistry Olympiads. In 2009, she took a Bachelor’s degree in Mechatronics Engineering at the National University of Engineering in Lima, and the same year was the recipient of one of the Fulbright Commission’s prestigious Opportunity Grants scholarships. In 2010, she won a KAUST Fellowship to pursue a Master’s degree in Computing in Saudi Arabia, but opted to study towards her PhD at the Georgia Institute of Technology instead.

The goal of Ana’s doctoral research is to develop planning algorithms that will enable robots to perform human tasks autonomously with intelligent behaviors. In high-risk environments such as mining, mineralogy and metallurgy, which are among the main economic activities of Peru, devising low-cost robotic systems to carry out tasks currently performed by badly underpaid workers would have a huge impact and save many lives.

Peru is a developing country with an economy based mainly on exportation of mineral and agricultural products. Most of its farmers live in poverty and don’t have access to a decent education. Ana would like to play an active part in changing all that—something that can only be achieved, she believes, through technology and education. Industry and education must work together, and for that reason, Ana plans to return to Peru after completing her research and take up a teaching position at her alma mater.
Bushra ISLAM

Bushra Islam was born and brought up in Dhaka, Bangladesh.

Bushra completed her secondary and higher secondary education at the Viqarunnisa Noon School and College in Dhaka. After graduating with a BSc in Civil Engineering from the Bangladesh University of Engineering and Technology (BUET) in 2009, she started working towards her MSc in Civil Engineering at the same university and was awarded with the degree in 2013. In January 2013 Bushra went to the University of British Columbia, Canada as a visiting scholar under the Canadian Commonwealth Scholarship Program graduate exchange scheme, where she conducted research on application of shape memory alloy in building structures. Bushra has worked on several civil engineering projects as a research assistant and research engineer, and is currently a lecturer at the BUET-Japan Institute of Disaster Prevention and Urban Safety. Before joining BUET, she was a lecturer in civil engineering at the Military Institute of Science and Technology, Dhaka. At present she is conducting her doctoral study in Civil Engineering at the University of Texas at Austin on a study leave from BUET.

While working on her undergraduate and graduate theses, Bushra developed a strong interest in the field of structural dynamics and earthquake engineering. Her doctoral research will focus on developing novel technologies to minimize structural damage during an earthquake. This is an area of major concern in countries such as Bangladesh that are particularly prone to earthquakes.

After completion of her doctoral program, Bushra expects to return to her current faculty position in BUET and share her experiences and knowledge through teaching and research work. She plans to prepare and conduct courses on structural damage mitigation techniques. She also hopes to work in the community and take part in initiatives to encourage women into the engineering profession.
Pramila KHATRI CHHETRI

Pramila Khatri Chhetri was born and brought up in Pokhara, Nepal. Her father was in the Indian Army and her mother was a farmer, and she now has a daughter of her own as well as a supportive and encouraging husband.

Pramila attended the Institute of Forestry, Pokhara Campus, Tribhuvan University, where in 2007 she obtained a BSc in Forestry and following this has worked there as a lecturer. Supported by a Norwegian Agency for Development Cooperation (Norad) Scholarship, she gained an MSc in Biodiversity and Environmental Management in 2009 from the University of Bergen, Norway.

The PhD research project at the University of British Columbia, Canada, is entitled “Forest ecosystem carbon budgets and accounting: a carbon budget model” The research is focusing on the change and impact of disturbances and land use change on forest carbon stock in the landscape, its contribution to the global carbon budget, and the implications of this for British Columbia and Nepal. The work is based on CBM-CFS3 (Carbon Budget Model of the Canadian Forest Sector), which is a Windows-based software modelling framework for carbon accounting and is widely considered to produce reliable outputs that can be used to evaluate carbon stocks and stock changes. Carbon budgeting and accounting in Nepal has, to date, been based mainly on simple simulations. Using a more advanced system will provide more reliable carbon budget data, which will be useful to the country’s scientific community, forest managers, environmental organizations, carbon-offset trading systems and policy-makers.

Following her studies, Pramila plans to return to teaching at the Institute of Forestry, Tribhuvan University, where she will be associated with its Ecological Services Centre. She hopes to further develop her expertise in the field of carbon modelling, accounting and budgeting, and expects to collaborate with recognized international non-governmental organizations to model and account for carbon in the forests of Nepal.
Ramya KORLAKAI VINAYAK

Ramya Korlakai Vinayak was born and brought up in the small town of Sagar in Southwest India. Her parents came from an agricultural background, and they were the first generation in their families to go to college. Her mother is a great source of inspiration to Ramya, and both parents have always encouraged her and been supportive of her aims.

Ramya completed her schooling in her home town, where she excelled in mathematics, physics and chemistry. She attended the Indian Institute of Technology Madras (IIT Madras), Chennai, India, where in 2011 she gained a B.Tech. in Electrical Engineering with a Minor in Physics. In her final years of high school, around 50% of the science class were female. However in her class at IIT Madras, women represented less than 9% of students. This inequality reinforced Ramya’s belief that there should be more women in academia and also in policy-making bodies.

The PhD research relates to computational and statistical learning aspects of mathematics, which, despite being rather abstract, provide powerful tools to solve large-scale complex problems in science and engineering. Ramya’s work focuses on novel and improved ways of extracting relevant information from large datasets. Efficient algorithms for pattern recognition in these datasets is useful in applications including bioinformatics, astronomy, renewable energy research, social networks, environmental research and complex physics simulations. For bioinformatics in particular, these algorithms can help understand the patterns of gene expression that lead to different types of cancer, and could therefore help to develop early detection systems and treatment.
Akshata KRISHNAMURTHY

Akshata Krishnamurthy was born and raised in Bangalore, India. Her father, an electronics engineer, and mother, a science and mathematics graduate, value education highly and always encouraged Akshata and her sister to pursue their interests in science and engineering. While at high school she became involved in a research project at the Indian Institute of Science, and this experience reinforced her determination to pursue a career in research.

Akshata attended the Rashtreeya Vidyalaya College of Engineering, Bangalore, where in 2010 she gained a BEng in Mechanical Engineering, where her undergraduate thesis investigated advanced structures for applications in space. She was awarded a Fellowship at the University of Illinois at Urbana-Champaign, United States with a tuition waiver and stipend, where in 2012 she was awarded an MSc in Aerospace Engineering for her work on electric propulsion systems and small satellites. Akshata joined the Massachusetts Institute of Technology (MIT), United States, as a research assistant in 2013, where she has been working on developing small satellites to carry out on-orbit science and the construction of the MIT S-Band ground station, which will be used to track satellites.

The PhD research at MIT is geared towards the development of a class of standardized nanosatellites that weigh between 1 kg and 4 kg. The ability to launch these small satellites as secondary payload with larger spacecraft reduces the overall cost of a mission, and in addition have short development cycles and a higher frequency of launch opportunities.

Upon completion of her studies, Akshata plans to teach at one of the leading institutes of science and technology in India and pursue research into space systems and engineering. She hopes to foster collaboration through international exchange programs, and work towards inspiring and motivating young people, in particular women, to pursue careers in science.
Boyu Li was born and grew up in Tianjin, China, and is the only child in her family. After graduating from high school, she attended Peking University Health Science Center where she obtained a BSc in Pharmaceutical Science followed by an MSc in Chemical Biology. Boyu was awarded several awards for her excellent academic performance and received scholarships from both the Chinese Ministry of Education and Peking University. During her MSc studies she was a Teaching Assistant at the School of Pharmaceutical Science, Peking University, and has been a Teaching Assistant at Caltech since moving there in 2011.

Boyu’s research project focuses on the development of a polymer additive that can improve the fire safety and combustion efficiency of fuel via mist-control. The work includes both chemical synthesis and physical characterization of the polymers. The project is based on theory developed at Caltech over the last decade that is now in a position to be made a reality.

The results of this project may be particularly beneficial for China, as for the last 10 years it has had the world’s highest rates of casualties due to traffic accidents. The country’s greenhouse gas emissions are also increasing rapidly, and on average Chinese people spend 34% of their income on fuel. Improving fuel efficiency will therefore provide significant economic benefits to the population.

When she returns to China, Boyu plans to establish her own laboratory and hopes to inspire talented young students in the same way that Caltech is currently inspiring her. She is also keen to initiate collaboration and communication between China and the rest of the world.
Sonia MANGONES

Sonia Mangones was born in Bucaramanga, the eighth largest city in Colombia. She grew up in an academic environment, as her mother was a professor at the local public university and her father was a high school teacher. Sonia was an independent child and moved out of her parent’s home at the age of 16. She lived in the United States for a year as an exchange student, and then returned to Colombia to live in Bogota, its capital city, where she became a Civil Engineer and commenced her graduate studies.

Sonia attended the Universidad Nacional de Colombia (UNAL), Bogota, where she obtained a Bachelors’ degree, and in 2007, a Masters’ in Engineering, specializing in Transportation Engineering and Urban Environmental Management. As part of her studies she also received training in Urban Transportation Engineering at Lund University, Sweden. After graduating, she contributed to several projects related to public transportation in various parts of Colombia and Mexico. Since 2012 she has worked as an assistant professor and researcher in the Infrastructure and Transportation section of the Civil Engineering Department. She is one of only two women from 11 professors in her department.

Technical innovations such as advanced vehicle automation have the potential to improve transportation safety but can present challenges from public policy and legal points of view. Sonia is involved in a project to evaluate the safety benefits of different vehicle automation technologies in transit buses. The research group has built a transportation risk profile for New York City and Bogota, and expects the work to help public bodies and transport agencies make more informed decisions about the potential benefits of advanced technology buses.

After her PhD studies, Sonia plans to return to UNAL, where she looks forward to helping reinforce its recently launched PhD program in Civil Engineering.
Eloïse Marais grew up in a small coastal city on the east coast of South Africa, and developed an appreciation for science at a young age. She excelled in mathematics at secondary school but wanted to pursue a career that merged mathematical reasoning with the natural sciences, and therefore chose to study chemistry. She is the first in her immediate family to study far away from home and the first to achieve a PhD.

Eloïse gained a BSc in Chemistry from the University of KwaZulu-Natal, South Africa, and then, supported by various scholarships, studied towards an MSc in Chemistry at Rhodes University, South Africa. While applying for the Fulbright Fellowship that would bring her to Harvard she discovered that the study of atmospheric chemistry allowed her to include a public policy element in her academic research career. Her current PhD research focus is on air quality in Africa.

Africa is not only the most vulnerable region to changes in climate, but also the continent poised to experience the most rapid economic and population growth in the 21st century. Eloïse’s work aims to increase understanding of current processes that contribute to air pollution and assess the implications of rapid growth and future climate on air quality across Africa. In her postdoctoral research she will further develop her skills in analyzing and interpreting measurements of atmospheric composition from satellites launched by the US and European space agencies. Such measurement tools are invaluable for Africa, where ground-based observations are sparse.

Following her studies at Harvard, Eloïse plans to return to South Africa to teach and continue her research at the North-West University. She hopes to grow current ground-based observation networks in Africa and develop an atmospheric modeling institute that will serve as a resource for South African research institutes and sub-Saharan universities in general.
Chinyere MBACHU

Chinyere Mbachu comes from a family with her parents both educators. Her interest in chemical engineering started when she was about 7 years old and fascinated by the explanations of results from home chemistry experiments. She represented her high school in science competitions and graduated as the best student in her year.

Chinyere was accepted to the Federal University of Technology, Owerri (FUTO), Nigeria, where she obtained a B.Tech. in Food Science and Technology and completed M.Sc coursework in the same major. Supported through the Graduate Assistantship, AAUW International Fellowship, Society of Women Engineers scholarship, the Ivanhoe Foundation Fellowship and others, she joined Tennessee Technological University where she gained an M.S in Chemical Engineering in 2010. Her thesis is related to renewable energy, and she received the Outstanding Masters student of the year award for her work. She then enrolled in the university’s Chemical Engineering PhD program. In March 2013 and with a 4.00 GPA, she was honored with the Golden Torch Award—Graduate Student of the Year by the National Society of Black Engineers.

The PhD research focuses on the modeling of novel fiber-packed reactors for the production of biodiesel. This is important in order to improve scaling and designing aspects of these reactors. Production of biodiesel is currently receiving a great deal of attention because it is renewable, biodegradable, non-toxic, and an alternative to petroleum-based diesel. The work will help to determine the kinetics and global chemical reactions required to produce a low cost biodiesel with low environmental emissions.

Upon completion of her PhD program, Chinyere plans to return to FUTO and help more young women to develop interest in STEM and to gain more applied research experience in chemical engineering and energy issues. She plans to use her experience to establish and develop collaborative projects and partnerships of knowledge transfer between industry and academia in Nigeria.
Mona Mohamed’s father always encouraged her to pursue her education, which motivated her to study hard to be the first in her class at school. She was accepted into the Faculty of Science at Alexandria University where she gained a BSc in Chemistry. Since 2006 she has been a teaching assistant in the faculty’s Physical Chemistry and Inorganic Chemistry laboratories, while also working towards an MSc in Corrosion Chemistry. The 2011 revolution in Egypt interrupted Mona’s studies, when she moved to the United States. She is currently a teaching assistant at the University of South Florida.

Mona’s research interest is the synthesis and design of porous metal organic materials for gas storage and gas separation applications. She was inspired to pursue this topic due to the potential of this class of materials for the storage and separation of CO₂, the major anthropogenic greenhouse gas in the atmosphere. Concentrations of CO₂ continue to rise, and a global effort is ongoing to develop new technologies and processes for its effective capture and sequestration/ separation. Mona has synthesized a new class of porous metal organic materials that are highly selective adsorbents for CO₂ at low pressure, making them a good potential candidate for extracting CO₂ from industrial flue gas. These materials, first reported in 2012, have been assigned Reticular Chemistry Structure Resource (RCSR) code mmo after their discoverer Mona Mohamed.

After completion of her PhD research, Mona intends to return to teaching at Alexandria University. She and her husband plan to prepare a proposal on the metal organic materials applications to gain funding for Egypt’s first research laboratory in this field of science.
Esther Nelly MOSASE

Esther Mosase was born and started her school education in Ramotswa, a village in the South East District of Botswana. She completed high school in Otse, another village in the South East District, and then attended university in Gaborone, the capital city of Botswana, where she currently lives.

Esther attended the University of Botswana in Gaborone, where she obtained a BSc in Environmental Science with a focus on soil science and hydrology. She then studied at the Botswana College of Agriculture towards an MSc in Agricultural Engineering, specializing in soil and water engineering offered by the Department of Agricultural Engineering and Land Use Planning. While at this Department, women represented just 7% of the teaching staff, who at that moment were Masters Holders. The majority of the teaching staff was males, who had a PhD qualification.

Her research at South Dakota State University involves agricultural engineering, soil science, hydrology, and geospatial tools such as geographic information systems (GIS) and remote sensing. Esther is particularly interested in monitoring the amount of moisture retained under different land uses, which in turn determines the amount of runoff a drainage basin can release. The proposed monitoring will take advantage of remote sensing and other geospatial tools, of which there is limited experience in Botswana. Building knowledge of these tools can help support informed decisions about drainage basin health and water resource management, and ultimately could help solve problems of water shortage in Botswana.

Following her studies, Esther plans to teach at the Botswana International University of Science and Technology, Palapye. One of her long term goals is to investigate the feasibility of establishing a center dealing solely with geospatial applications. She also intends to be an advocate for the introduction of the topic at lower levels, such as senior secondary schools.
Tuyeni Heita MWAMPAMBA

Tuyeni is an associate research professor at the Centre of Research in Ecosystems (CIEco) of the National Autonomous University of Mexico at its Campus in Morelia. She acquired her Bachelor’s degree in Environmental Studies from Mt. Holyoke College, USA in 2000 a PhD degree in Ecology from the University of California at Davis, USA in 2009. Between her undergraduate and graduate degree, she worked as an environmental consultant in Tanzania where she obtained a lot of practical experience in the application of social science and development methodologies for rural planning and assessment of social impact.

Today, Tuyeni conducts research primarily in Mexico and Tanzania on the social and ecological implications of forest management by communities. She is working towards developing a stronger link between Mexico and Tanzania researchers, students and practitioners, and hopes to one day lead a field course that explores the socio-ecological similarities between these seemingly disparate nations. Fieldwork is her therapy and her inspiration and she enjoys every moment she can be in her tent, with communities, somewhere away from internet and phones. Her laboratory is slowly growing and she is finding this new phase is her career (as an advisor to students) both demanding and rewarding at the same time.

Interdisciplinary research is Tuyeni’s main forte. Direct experience in the field has convinced her that it is impossible to understand forest management in the tropics without simultaneously addressing social and ecological processes. Consequently, her laboratory at CIECo focuses on addressing the social and ecological implications of community management of natural resources. Tuyeni is an active participant in the development of participatory methods for evaluating social and biodiversity impact of natural resource projects. She is also active in scientific societies such as the Association of Tropical Biology and Conservation and in the Africa Section of the Society for Conservation Biology.

Home Country
Tanzania

Degree
Post-Doctorate in Ecology

Expertise
Tropical Forest Ecology, Ecosystem Services, Community Participation in Natural Resource Management

Research Focus
Socio-Ecology of Ecosystem Service Potential and Use in Community Managed Forests

Host University
National Autonomous University of Mexico

Fellowship Awarded
2010
Sreeja Nag was born and brought up in Pune, India.

She has Bachelor’s and Master’s degrees in Exploration Geophysics from the Indian Institute of Technology, Kharagpur, India. Sreeja’s Master’s thesis, prepared in 2009 in collaboration with the University of California, Berkeley, United States, was an analysis of satellite data to interpret faults in the San Francisco Bay Area. In 2012 she gained two further Master’s degrees from the MIT, United States. These were in Aerospace Engineering and Technology Policy. Her dual Masters’ thesis was on the usage of collaborative competition for crowdsourcing spaceflight software and for STEM Education through the SPHERES Zero Robotics program.

Her current research is to design nano-satellite constellations for Earth observation missions aimed at estimating Bi-Directional Reflectance Distribution Functions (BRDF), and understand the trade-offs between technical performance and programmatic complexity. Small satellites are more affordable and quicker to develop than traditional large systems, and can make space-based Earth observation accessible to developing countries. BRDF is needed for correction of view angle and illumination angles in image standardization, derivation of surface albedo, climate modeling and the calculation of radiative forcing at the top of the atmosphere, land cover classification, cloud detection and many other applications. Her research is in collaboration with NASA Goddard Space Flight Center and NASA Ames Research Center.

While pursuing her PhD, Sreeja plans to establish and maintain professional collaborations with national and international space research organizations including the Indian Space Research Organization. Meanwhile, she intends to complete her training for a helicopter flying license, which began in 2011.

Sreeja will graduate in May 2015. In the long-term, she hopes to create an independent educational venture in India based on the principles of creative, hands-on learning and equality of students.
Debaleena NANDI

Debaleena Nanadi was born in Chandannagore, West Bengal, India. She grew up and attended school in Durgapur. Debaleena developed a particular interest in mathematics, literature and sciences. Many of her school friends have pursued academic careers, and their encouragement has been a strong source of support.

Debaleena has a BSc in Physics from Jadavpur University, Kolkata, where excellent mentoring from her teachers transformed the subject from an academic pursuit to a love for understanding the details of how nature works. She joined the Indian Institute of Science, Bangalore, which provided her with the opportunity to conduct research and interact with some of the most accomplished scientists in India. It was here that she became deeply interested in condensed matter physics.

The PhD studies at Caltech relate to the effects of coulomb repulsion between electrons in two layers (bilayers) separated by an ultra-thin insulator. The experimental samples are cooled to extremely low temperatures and put in a strong magnetic field. Here a collective state forms where an electron in one layer becomes tightly bound to an empty state called a “hole” in the other layer. These resulting particles are charge-neutral bosons and might exhibit superfluidity, and the study is looking for indicative signatures of this. Superfluidity is a state of matter in which matter behaves like a fluid with zero viscosity. The characteristic was originally discovered in liquid helium and is also found in astrophysics, high-energy physics, and theories of quantum gravity.

After her PhD studies, Debaleena plans to pursue postdoctoral research for a few years. Upon return to India, she plans to teach at the Indian Institute of Science where she hopes one day to be able to set up an independent research group. She also wants to mentor exceptional women researchers and address some of the key difficulties that women face through science policy making.
Lauretta Ngere grew up in the city of Ibadan, Nigeria. She has chosen to pursue a career in the same field as her father, who is a Professor of Animal Breeding and Genetics. Lauretta is also a regional ambassador for Girl Rising, a global movement for girls’ education based primarily around a 2013 feature film that tells the stories of nine girls from different parts of the world that faced arranged marriages, child slavery, and other injustices. Through gaining an education, the girls were able to break through these barriers and create change.

Lauretta gained a BSc in Animal Production from the University of Agriculture, Makurdi, Benue State, Nigeria. She then obtained an MSc in Animal Science at the University of Ibadan, Nigeria. She is currently studying towards a PhD in Animal Breeding at Texas A & M University, United States.

According to the Food and Agricultural Organization (FAO), sub-Saharan Africa has the world’s highest proportion of undernourished people. The average daily protein intake of Nigerians is lower than the FAOs recommended 53.8g minimum, and the insufficient supply of protein products can be attributed, in part, to low performance from the livestock industry. Lauretta’s research focuses on genetic enhancement of livestock tolerance and resistance to internal parasites, which cause weight loss, anemia and other problems, and have become increasingly resistant to the drugs used against them. Identifying and breeding indigenous types of livestock that are genetically resistant to internal parasites will result in healthier animals, leading to increased supply of protein for human consumption.

When she completes her PhD studies, Lauretta would like to become a lecturer and researcher in the field of animal breeding. She hopes to improve the economic state of farmers by disseminating knowledge, solutions and strategies for improvement and ultimately enhance long-term and equitable solutions for agriculture and food production.
Caroline Ng’weno is from a small village in Keiyo District, Kenya. When she was a child her primary tasks centered on tending livestock and fetching firewood, which left her with a lasting appreciation for nature and the links between human livelihoods and wildlife conservation. Her parents encouraged her to focus beyond her village, instilling her with their belief that the sky is the limit when it comes to achievement.

In 2000, Caroline enrolled in a bachelor’s degree program in Science Education at Maseno University, Kenya. After earning her BSc, she returned to her village school to teach. The sight of children missing school to search for water and firewood triggered old memories, and led her to wonder how to both engage and serve the community through conservation. As a result she joined a masters’ program in Environmental Studies at Moi University, Kenya, and upon completion of her MSc Caroline worked at Ol Pejeta Conservancy, where she looked to bridge the gap between wildlife conservation and livestock production on which many locals in the region depend.

Caroline’s PhD research focus at the University of Wyoming, United States, focuses on wildlife-livestock integration in savanna ecosystems, and aims to find a lasting solution to how proactive livestock husbandry can bolster the diversity of wild ungulates (hoofed mammals) in human-occupied rangelands while at the same time reducing the motivation for locals to shoot lions and other large predators. Through its partnership with Karatina University, Kenya, and one of Kenya’s leading girls’ secondary schools, the project is also helping to train aspiring female biologists.

When her PhD research is completed, Caroline plans to return to Kenya and take up a faculty position at Karatina University. She hopes to contribute towards conservation by helping to formulate national policy and build the capacity of young Kenyan scientists.
Olihe OKORO

Olihe is a pharmacist with a Master’s degree in Clinical Pharmacy/Pharmacology from the University of Nigeria, Nsukka, Enugu State. She recently obtained a Doctorate degree in Pharmaceutical Outcomes & Policy in addition to a Masters in Public Health (MPH) at the University of Florida, United States. She has worked in Nigeria as a pharmacist in different practice settings – pharmaceutical marketing, hospital, academia and community pharmacy. Through her work in Nigeria, she has seen first-hand the toll HIV takes on infected women as they battle the disease while struggling to maintain their role caring for their families. The World Health Organization estimates that HIV/AIDS is the leading worldwide cause of morbidity and mortality for women in their reproductive years, defined as 15–44. Within this population, Black women are the most disproportionately affected by the disease.

Her dissertation compared perceptions of patients and healthcare providers on linkage to care and medication adherence among Black women living with HIV/AIDS. This study generated critical information for the development of effective healthcare delivery programs for this special population. The long-term goal of Olihe’s PhD research program is to develop a culturally responsive and targeted intervention program that will improve retention rates in HIV treatment programs and enhance medication adherence among Black women living with HIV/AIDS.

Olihe plans to return to her home country where she expects to join the academic workforce to mentor pharmacy students at the University of Nigeria. Her long-term career goal is to become a professor and leader in patient safety and medication management issues.
Carol Ovon was born and raised in Kampala, the capital of Uganda, and is the sixth of eight children. She attended a girls-only boarding school for the six years of high school and has a passion for teaching.

Carol graduated with a BSc in Electrical Engineering from Makerere University, Kampala. She then spent several years as a network planning engineer in the telecommunications industry and later in academia as a teaching assistant. She was awarded a Fulbright Fellowship, which led to an MSc in Telecommunications and Networking from the University of Pittsburgh.

The PhD research focuses on the area of information security, user privacy and law enforcement. Although the Internet has become critical in everyday life, it was never designed to require and ensure the accountability of its users, and violations of user privacy, identity thefts, and other malicious acts have flourished. A Norton study in 2011 reported a total financial loss from cybercrime of USD 341 billion. CMU, Boston University and the University of Wisconsin Madison are collaborating on reinventing the Internet under the eXpressive Internet Architecture (XIA) umbrella. Carol joined this research group in 2012. Her research will explore the feasibility of incorporating accountability on the Internet. Policy and technical implications and their impact on design decisions will be studied, and also their associated implications on the security of user information, privacy, and law enforcement.

After completing her PhD studies, Carol plans to teach at Makerere University and continue her research in Internet security. She intends to actively influence and engage school children in disadvantaged communities to embrace education and explore their talents.
Novalia PISHESHA

Novalia (Nova) Pishesha was born and raised in Malang, a small city in the East Java Province of Indonesia. Her father is a shopkeeper and her mother a housewife. Although neither finished school, they always encouraged her to aim high and value education. Nova noted that a lack of technology and hospital-based curative services, as well as limits in preventive and health-promoting services, can constrain what a doctor can do to help patients. This solidified her resolve to work on advancing technology for solving medical problems.

Nova obtained a BSc in Bioengineering from the University of California at Berkeley, United States, supported entirely by the university’s merit scholarships and leadership awards. She graduated at the top of her class and received the Bioengineering Departmental Citation Award. In 2012, she started her PhD at MIT and the Whitehead Institute for Biomedical Research. Alongside course work and efforts in advancing science education, she has been working on engineering red blood cells (RBCs).

The PhD project integrates tools and expertise from fields including molecular biology, chemistry, mechanical engineering, and electrical engineering to solve medical problems. Nova is investigating the promises of engineered RBCs to serve as natural adjuvants, being able to be taken up by macrophages, hence aiding the body in initiating a specific immune response against foreign particles. Since the currently available adjuvants are artificial and can cause dangerous side effects, the development of better adjuvants is a priority in the fight against tropical diseases. Additionally, this project will be the first to attach antigens to the surface of RBCs covalently using enzymatic ligation of antigen to native surface proteins.

Following her PhD and postdoctoral training, Nova plans to return to Indonesia and start her own laboratory at the Institute of Technology, Bandung or Surya University.
Nandhini Ponnuswamy was born in Chennai, India, and lived in a number of locations across the country.

Nandhini attended St. Stephen’s College, University of Delhi, India, to study for a Bachelor’s degree in Chemistry. While there she received a Kishore Vaigyanik Protsahan Yojana scholarship from the Indian Institute of Science. This gave her the opportunity to work in leading scientific institutions such as the Indian Institute of Science, Bangalore; Indian Institute of Technology, Madras; and the Tata Institute of Fundamental Research (TIFR), Mumbai. After graduating in 2007 Nandhini was selected by St. John’s College, University of Cambridge, United Kingdom, to pursue Master’s and PhD courses funded by the Gates-Cambridge Trust. During her PhD, Nandhini worked under the supervision of a world-leading expert in the field of supramolecular self-assembly and nuclear magnetic resonance spectroscopy.

The post-doctoral research investigates rapid, accurate, low-cost diagnosis of mycobacterium tuberculosis from bodily fluids such as blood, sputum, or urine. Tuberculosis is a common, and in many cases lethal, lung infection caused by various strains of mycobacteria. It is diagnosed definitively by identifying the causative bacteria in a clinical sample; however culturing the bacterium in the laboratory can take 4 to 12 weeks and it may not be detectable when in very low concentrations. Nandhini proposes using the synthetic-biochemistry method of DNA origami to self-assemble precise shape-based nanobarcodes that can be magnetically driven over nanoelectronic detectors for direct digital counting. If successful, it could have a revolutionary impact on disease diagnosis in third world countries where health facilities are limited.

After her post-doctoral studies, Nandhini plans to work in teaching and research at the TIFR, India.
Joycelyn Quansah was born and has spent most of her life in Accra, the capital of Ghana. She attended high school in Cape Coast, Ghana, where she graduated with a Senior Secondary School Certificate specializing in General Science.

Joycelyn attended the University of Ghana, Accra, where in 2009 she obtained a BSC in Nutrition and Food Science. Her undergraduate research was based on enhancing the utility of yams by altering them to create a product with properties comparable to potato French fries. Subsequently, a fast food company and research agency sponsored fellow graduate students to perform further work on yam fries and other yam products. In 2012, Joycelyn gained an MPhil in Food Science from the University of Ghana with research for her thesis performed at the University of Guelph, Canada, under an exchange program through a scholarship she won from the Ghana Education Trust fund. The research was aimed at evaluating the nutraceutical properties of cowpea and oat. After her undergraduate and post graduate studies, Joycelyn worked in the Nutrition and Food Science department of the University of Ghana as a teaching and research assistant.

Her research in the United States focuses on food safety and preventing food-borne illness. Studies in Ghana have shown that practices such as using wastewater for irrigation and illegal mining have the potential to affect the safety of fresh vegetables. Joycelyn is researching the effects of irrigation water sources on microbial, pesticide residue, and heavy metal contaminants in vegetables cultivated in some urban areas in Ghana.

After completing her PhD and postdoctoral studies Joycelyn plans to join the University of Ghana to teach and perform research. She also hopes to partner with entrepreneurs to enhance the shelf life and improve commercial uses of fresh Ghanaian produce.
Monica RAMIREZ CARVALHO

Monica Ramirez Carvalho was born and raised in Medellin, Colombia, one in a family of three children. Very early on in her childhood, she was fascinated by the different shapes and sizes of the plants and leaves that today play such an important part in her research.

In 2009, Monica graduated with a bachelor’s degree in Biology from the University of Antioquia in Medellin, Colombia, specialising in Plant Systematics. In the final years of her undergraduate studies, she also did an internship at the Smithsonian Tropical Research Institution in Panama. She is currently completing her MSc in Geosciences at Pennsylvania State University, after which she will begin work on her PhD at Cornell University.

Elucidating the origins of high-diversity ecosystems is crucial to conservation and to understanding the effects of climate change on vegetation. Monica’s doctoral research will focus on the evolutionary history of various tropical plant groups that are known to extend far back in time in the fossil record. Establishing how certain morphological features have changed over time, at what stage in evolution the groups in question originated and what effect, if any, ancient climatic fluctuations have had on their forms and diversity, should provide important clues to the history of neo-tropical rainforests.

Upon completing her PhD, Monica plans to return to Colombia and take up a teaching position at the University of Antioquia. She would also like to set up a paleobotany and plant morphology laboratory specialising in the recovery and study of fossil plants and the evolution of plant forms.
Essma REDOUANE-SALAH

Essma Redouane-Salah was born and raised in Constantine, north-east Algeria. She attended the University of Constantine, where she gained a BSc in Physics, an MSc in Theoretical Physics, and in 2009 a PhD in Particle Physics.

Since 2006, Essma has been an Assistant Professor of physics at the University of M’sila, northern Algeria, and since 2010 an Associate Researcher at the Laboratory of Subatomic and Mathematical Physics, University of Constantine.

She has worked on phenomenology beyond the Standard Model of electroweak and strong interactions; she also performed a research work in collaboration with the Institute of Nuclear Physics at the University of Claude Bernard Lyon 1, France. Through this collaboration she worked on phenomenological model analogous to string fragmentation in quantum chromodynamics.

Essma’s research focuses on theoretical physics in high energy, and investigates the fundamental and basic interactions in nature in the context of the Standard Model. The Standard Model theory has been tested to high precision, and provides answers to important questions in physics such as the elementary constituents of matter, the mechanism that generates their masses, and the mechanism responsible for charge conjugation and parity (CP) non-invariance.

Working at the renowned Lawrence Berkeley Laboratory is providing Essma with an excellent opportunity to develop a good knowledge of basic computational skills and a high quality foundation in theoretical physics.

Following her studies in Berkeley, Essma plans to return to teaching and research in Algeria.
Sofía Rodríguez Brenes was born and grew up in a large family in Costa Rica. She has had a passion for nature since she was a child, when her grandmother would take her for hikes in the forest, and it was early in her school studies that she decided to pursue a career in science.

Sofía gained a BSc in Biology from the University of Costa Rica (UCR) in 2005. During her undergraduate studies she became interested in the ecology and behavior of amphibians, and worked in Panama as a Research Assistant on a project investigating chytridiomycosis—an emerging infectious disease of amphibians caused by an aquatic fungal pathogen. After graduating from UCR she worked as a field instructor in a conservation and science education program for high school students in Costa Rica and Mexico. She has been studying towards her PhD and working as a teaching assistant at UT since 2010.

The PhD research expands Sofía’s interest in amphibian behavior and chytridiomycosis. It is based in Costa Rica, where 45% of frog species are considered endangered and two have become extinct. Since 2010 Sofía has sampled túngara frog populations in Costa Rica and Panama. Her research goals are to understand the indirect effects of host-pathogen interactions on reproductive behavior.

With the experience and skills gained during her PhD studies, Sofía plans to return to UCR and contribute to a more integrated approach to biological research in her home country.
Monica L. ROJAS-PENA

Monica Rojas-Peña was born and raised in Tunja, Colombia. Her mother, a single parent, was an inspiration and role model, teaching Monica to work hard and to be a strong, responsible woman. With help from her oldest brother, she and her four other siblings were able to go to college, and she was the first woman in her family to pursue a PhD. Monica has been volunteering with the Colombian Red Cross since 1998, where she has received training in search and rescue and has learned the value of helping people in need.

Monica obtained a BSc in Biology from the Universidad Pedagogica y Tecnologica de Colombia in 2006. She then moved to the University of Puerto Rico as a teaching assistant, where in 2010 she gained an MSc in Marine Sciences, majoring in Biological Oceanography.

Monica’s studies towards a PhD in Biology at the Georgia Institute of Technology, United States, began in 2012. Her research focuses on a systems biology approach to developing a malaria vaccine. She hopes to use gene expression profiling of the human immune response to malaria vaccination to identify biomarkers for vaccine immunogenicity and safety, and help to define the most effective strategies for vaccine implementation. The project will have a major impact in Colombia, where malaria is a major public health problem and particularly affects vulnerable populations like infants and pregnant women in poor areas of the country.

After her PhD studies, Monica would like to return to Colombia. She expects to benefit from the training in scientific methodology and opportunities to use cutting edge technologies provided by her time in the United States, and looks forward to passing these skills through teaching and research to students and researchers in her home country.
Lydia RONO

Lydia Rono was born and raised in the village of Barekeiwo, Kenya, and was one of a family of 15. She attended the local primary school, and through sacrifice from her parents’ subsistence farming and help from fund raising completed her education at a respected all-girl boarding school. Her parents’ hard work inspired her to work hard and make best use of all the resources at her disposal.

After graduating from high school, Lydia was admitted to the Kenya Scholar – Athlete Project; established to help students from underrepresented communities further their education in the United States. She was awarded a full financial scholarship from an endowment fund of Hamilton College in the state of New York, where in 2011 she obtained a BA in Chemistry. She then moved to Princeton University where she gained an MSc in Organic Chemistry and is now studying towards a PhD.

Lydia’s PhD research involves understanding and developing ways to make the complex molecules often found in pharmaceutical products more cheaply, which is important for countries like Kenya that have limited resources available for health care. The work focuses on preparing chiral molecules; molecules that have a defined three dimensional orientation that is crucial for drug interaction due to the asymmetry that is inherent in biological systems. As a result, selectively preparing one chiral version of a molecule over its mirror image is important in medicinal chemistry to maximize the “fit” or interaction of drugs into the target protein. In particular, Lydia’s goal is to develop new methods for preparing chiral molecules with structural patterns commonly found in medicinal agents that are otherwise challenging using conventional technologies.

After earning her PhD, Lydia plans to return to Kenya to pursue an academic career and intends to apply for a research faculty position at Moi University School of Physical and Biological Sciences.
Evangeline RUKUNDO

Evangeline Rukundo was born and raised in Kigali, the capital city of Rwanda. Her mother and younger brother supported her aspiration to pursue higher education.

Evangeline received a high school diploma in biochemistry from Lycée Notre-Dame de Cîteaux, Rwanda, in 2005, and joined Oklahoma Christian University in the United States as a Rwanda Presidential Scholar, where she graduated in 2010 with a BSc in Chemistry. During a 2008 summer internship with the Rwanda Energy Company she learned about her country’s urgent need for expert scientists and engineers, which was one of the factors that led her to pursue a PhD degree.

Her PhD research project focuses on the synthesis, spectroscopic characterization, and thermal chemical investigation of zinc salts of 2-oximinocarboxylates for the production of zinc oxide nanomaterials that are used for the removal of arsenic from drinking and wastewater. Evangeline is motivated by this research because it addresses an environmental concern and provides lessons that are applicable to a large host of other pollution and water treatment problems that may be present in her home country.

Following completion of her PhD program, Evangeline plans to return to Rwanda to work as a scientific consultant, a job that she can combine with a university professor position. She will join the Rwanda Association for University Women, an organization that will facilitate her desire to encourage the country’s women to study sciences.
Sangeena Devi SALAM

Sangeena Salam was born and raised in Manipur, a state in the far north east of India. Since childhood she was inspired by her mother to join the teaching profession. Her home state suffered from limited educational facilities and security problems related to insurgency, so instead she conducted her undergraduate studies in Mysore, in the south of India.

Sangeena attended Yuvaraja’s College at the University of Mysore, where in 2007 she obtained a BSc in Chemistry, Zoology and Botany, followed in 2009 by an MSc in Biochemistry. During this time she was awarded prizes for achieving the highest ranking in Zoology. In 2010, Sangeena joined the Department of Biology, McMaster University, Canada as an MSc student, and in 2011 transferred to its PhD program.

Her initial work at McMaster University influenced Sangeena’s decision to focus her research on neurodegenerative disease, in particular Parkinson’s disease. It is the world’s second most abundant neurodegenerative disorder, and is characterized by the progressive loss of dopamine neurons in the brain. Symptoms include imbalanced, slow and uncoordinated movements, and exposure to environmental toxins is thought to be a significant contributor to the disease. Sangeena is using the nematode Caenorhabditis elegans as the model organism for her research as the findings can be translated to human counterparts. She therefore hopes that her research will be valuable in understanding the molecular mechanisms of dopamine signaling and neurodegeneration pathways associated with Parkinson’s disease, as well as potentially identify new molecular targets for drugs to be designed to treat this degenerative disease.

After completion of her PhD studies, Sangeena plans to perform postdoctoral research for a few years and then to take up a faculty position at the University of Mysore. She intends to continue exploring neurodegenerative disease mechanisms, with a particular focus on Parkinson’s disease.
Fatima SHAHAB

From early childhood, Fatima Shahab enjoyed tinkering with mechanical toys and gadgets, instilling a strong desire to know how things work. Her older brother is an engineer, and from high school she decided to follow in his footsteps and pursue a career in Mechanical Engineering.

Fatima received a BTech in Manufacturing Technology in 2008 from JSS Academy of Technical Education, Noida, India. After her undergraduate studies, she pursued research into green material based composites for noise control at the Indian Institute of Technology Kharagpur (IITKGP), where in 2010 she obtained an MS in Mechanical Engineering. She stayed at IITKGP for her PhD research into machinery condition monitoring. She has worked on several projects for industries where product noise has been reduced using natural materials.

While exploring for cheap and environmentally friendly noise control materials at IITKGP, Fatima had the opportunity to work on noise control using jute fiber. Her postdoctoral research at Purdue University focuses on the use of bio-degradable, environmentally friendly natural fiber materials for noise control in home appliances like vacuum cleaners, washing machines, refrigerators and air-conditioners. She is confident that the research will improve the marketability of jute-based products, and benefit farmers from South Asian countries where it is grown.

After her studies in the United States, Fatima plans to return to teaching at IITKGP or another of India’s premier engineering institutes. She hopes to encourage young female students to take up engineering as a career and support gender equality in higher education.
Ulina Shakya was born and grew up in Nuwakot, Nepal. Few girls in Nepal choose Civil Engineering as their profession as it requires a great deal of field work; however, since early childhood it has always been Ulina’s top field of interest. She is very enthusiastic about working, participating in research activities, and studying to further her knowledge and standing in the subject.

After achieving excellent grades at high school, Ulina was accepted into the Institute of Engineering at Tribhuvan University, Kathmandu, Nepal, where in 2011 she gained a B.E in Civil Engineering. After a brief period working as a Civil Engineer for the Nepal Department of Archaeology, she became a Structural Design Engineer for a company that provides engineering and related support to hydropower development. Her work involved structural analysis and design of various components of a 26 megawatt hydropower project.

Ulina’s PhD research involves understanding the current and emerging earthquake engineering concepts and technologies being used in developed countries, and considering their potential for application in underdeveloped and developing countries such as Nepal. She will be involved in part of the United States National Science Foundation (NSF) Network Earthquake Engineering Simulation Research (NEESR) project “Inertial Force-Limiting Floor Anchorage Systems for Seismic Resistant Building Structures”.

Following completion of her research in Arizona, Ulina plans to return to teaching at Pokhara University, focusing on Earthquake Engineering. The country is in a high earthquake risk zone, and she hopes to share her new knowledge to improve building designs and raise safety awareness.
Sita THAPA

Sita Thapa was born and grew up in Subbagown, a small village near the city of Panauti, Nepal. She attended high school in Panauti and was then given the opportunity to complete an Intermediate in Science program at Kathmandu University, Nepal, which prepared her for her undergraduate studies. Her parents are involved in agriculture and own a small poultry business, inspiring her to pursue her research in this area.

After teaching in a school for a year, Sita went to the Himalayan College of Agricultural Sciences and Technology (HICAST), which is affiliated to Purbanchal University. She obtained a BSc in Agriculture in 2008, and received a gold medal from HICAST for achieving the highest grades in her year and an award from the president of Nepal for the highest Bachelor’s level grades among girls. She then worked for more than a year in a rural part of Nepal for a non-governmental organization established to help disadvantaged groups. After this, supported by a tuition fee waiver and research assistantship, she attended the University of Illinois, Urbana-Champaign, United States, where in 2014 she gained an MSc in Crop Science majoring in Plant Pathology.

Sita’s PhD research involves the design of microfluidic devices for behavioral studies of Meloidgyne graminicola, a root-knot parasite in rice, the staple food of most Southeast Asian countries. Rice yield loss caused by M. graminicola has been reported around the world, but little is known about the neuronal basis of host recognition in any plant-parasitic nematode species. This lack of knowledge is due, in part, to difficulties in studying a soil-borne parasite. Microfluidics has emerged as a powerful tool for behavioral analysis, imaging and laser ablation in these parasites, and may help to identify new pest control strategies.

When her PhD studies are complete, Sita plans to teach at HICAST, where she has already identified interest in the microfluidic devices being developed, as they are relatively inexpensive and simple to use, making them particularly suitable for developing countries such as Nepal.
Muvari TJIURUTUE

Muvari Tjiurutue was born and raised in the small town of Otjiwarongo, in the north of Namibia. Her interest in biology stems from early childhood, and during her high school years her favorite subjects were life sciences and accounting.

Muvari studied at the University of Namibia (UNAM), Windhoek, where in 2006 she received a BSc in Molecular, Physiological and Environmental Biology. Her undergraduate project investigated the germination ecology of Hydnora triceps, a parasitic plant that lacks chlorophyll and depends entirely on its host for water and nutrients. During this work, Muvari developed an enthusiasm for plant parasites and botany in general.

In 2010, Muvari was awarded a Fulbright scholarship to pursue an MSc Plant Biology program at the University of Massachusetts, United States, where her research focused on the effects of dodder (a parasitic plant) on cranberry chemistry and species interactions. She found that some cranberry cultivars were more resistant to dodder, possibly due to differences in scent composition. If growers were to manipulate scent composition, it could make the plants more resistant to dodder parasites. The PhD research continues her investigations into the effects and impacts of parasitic plants on their respective hosts, and considers topics impacting her home country. In Sub-Saharan Africa, parasitic plants such as Striga can infest more than 10 million hectares of important crops, severely affecting the subsistence of farmers that depend on them. In certain regions of Namibia, parasitic plants affecting the yield of maize and millet are a major problem for farmers.

Muvari’s goal is to work as an independent researcher and professor at the UNAM. She believes that Namibia currently has too few professional women in her field of expertise, and she plans to guide and mentor female undergraduate and graduate students to conduct research projects with her. She also hopes to extend her mentoring to the wider community.
Lina Maria VALENCIA

Lina Maria Valencia was born and grew up in Bogota, the capital city of Colombia. Her parents owned a small farm in the countryside, and since childhood she was encouraged to take care of natural resources and love nature, which led to her pursuing a related career in biology.

Lina Maria has a BSc in Biology from the Universidad de los Andes, Bogotá. As an undergraduate, she attended several field courses around Colombia. During an Ecology field course in her second year, she saw a troop of squirrel monkeys less than 10 meters away and followed them for two hours through the forest. This sparked her interest in primate biology, ecology and behavior, and for her undergraduate thesis she studied the highly endangered brown spider monkey Ateles hybridus.

The PhD research focuses on how genetic tools can contribute to the conservation of primates, specifically addressing how animals respond to environmental change and habitat fragmentation. Lina Maria is particularly interested in investigating how heterogeneous landscapes influence the population structure of primate species, and the environmental factors that affect the connectivity between populations in order to generate conservation plans for endangered species in Colombia.

After she finishes her PhD, Lina Maria expects to return to Colombia where she hopes to become a faculty professor and continue her research work. The PhD project will give her experience of modern research methods that she will bring back to her home country. When fieldwork takes her to remote areas, Lina Maria plans to take the opportunity to instruct local women in biology and involve them in environmental educational programs.
Hao Vo was born in the poor, arid area of Tayson, Binh Dinh province, Central Vietnam—a place that traditionally fought against extreme weather and foreign invasions. The livelihood of her family was based on cultivating a few hundred square meters of rice paddy owned by the Government. Despite the commonly held opinion among the local community that supporting a girl in studies was a waste of money, her father mortgaged their house and paddy field to provide her and her sisters with tuition.

Hao received a BSc in Environmental Engineering at Nong Lam University of Agriculture and Forestry, Ho Chi Minh City, Vietnam, in 2008. She then worked for a year as a wastewater treatment plan designer for a Vietnamese company that provides environmental technologies. In 2009 she accepted the offer of a teaching assistant position at the Gialai campus of Nong Lam University, incurring a reduction in income but moving closer to home. Since 2011 she has been a Research Associate in the Department of Chemical and Environmental Engineering at the University of Arizona, where she began her PhD studies with support from a university tuition scholarship program.

Many people in Hao’s home community suffer from a skeletal deformation thought to be caused by fluoride contamination of ground water. The PhD continues her studies on the treatment of contaminated soils or water and preventing future pollution problems. The research plan involves optimal use of advanced oxidation in combination with aquifer storage to find low-cost strategies for water quality restoration.

Following her studies, Hao plans to return to teaching at the Gialai campus of Nong Lam University, and use her new skills and knowledge to contribute meaningful ideas for the sustainable development of her home community and Vietnam as a whole.
Agnes YEBOAH

Agnes Yeboah was born and raised in Ghana. She is married with an eight year old daughter, and spends most of her free time helping with her homework and driving her to numerous extracurricular activities.

Agnes has a BSc in Chemical Engineering from Columbia University, United States, and an MSc in Chemical and Biochemical Engineering from Rutgers University, also in the United States. She remained at Rutgers University to pursue her PhD in Chemical Engineering, with a research focus on biotechnology.

Advances in biotechnology have given new hope in the treatment of life threatening and chronic diseases such as diabetes and cancer, which were once seen as death sentences but can now be successfully managed. While the concepts of biotechnology are widely applied in developed countries, less developed countries such as Ghana lag behind—for example millions of people affected by diabetes in Ghana continue to lose their limbs. Agnes’ primary motivation for pursuing a PhD is to ensure she gains the necessary breadth of knowledge in biotechnology to allow her to develop expertise in the Ghanaian research population. Her doctoral research involves the use of nanoparticles made of growth factor—Elastin-like polypeptide (ELP) fusion proteins to aid the healing of severe wounds such as the chronic wounds that result from diabetic ulcers. Results from her work will provide valuable alternatives to current treatment regimens for diabetic wounds in Ghana.

Agnes’ short-term goal is to join the Engineering faculty at the Kwame Nkrumah University of the Science and Technology, Ghana, where she plans to serve as an academic advisor to women pursuing science degrees. She hopes to help equip students graduating from Ghanaian Universities with the same expertise and skillsets as their counterparts in the United States.
Zhihui Yi was born and grew up in Changchun, China. She has one elder brother, who gave her financial and spiritual support. While an undergraduate in Jilin Normal University, she founded a performing arts company and recruited 26 students as part-time actors. This experience provided leadership, social and communication skills, and helped her to become elected President of the Students’ Association.

Zhihui has a MSc in Chemistry from Jilin University, China, where she was Executive Editor of the Science Edition of the University’s postgraduate newspaper. During her MSc she started her research on polyoxometalates. In 2007 she joined the Chinese Academy of Sciences as a research assistant, and performed research into dye sensitized solar cells (DSSCs). Her responsibilities included training new students and providing laboratory tours to visiting companies active in photovoltaic developments. In 2011, she was accepted as a Research Associate by Harbin Institute of Technology, China. She began her PhD studies in 2012, supported by a merit scholarship from the government of Quebec, Canada. In 2014, she was granted the Gilles Brassard Doctoral Prize and was accepted by the Governor General of Canada at Rideau Hall in Ottawa.

The PhD project focuses on the fabrication and characterization of novel organic bioelectronics devices. It will help Zhihui acquire new knowledge and skills in device fabrication, electrical measurements and electrochemical measurements, which are widely used in engineering, physics and biology. Potential applications include protein-enhanced biomaterial interfaces such as corneal and vascular implants; and devices to electrically trigger the delivery of drugs at the right time and in the optimum location in the body.

After her PhD, Zhihui plans to return to the Harbin Institute of Technology as a professor. She also wants to establish a research group and found a company providing healthcare products.
About the Schlumberger Foundation

The Schlumberger Foundation History
The Schlumberger Foundation is a non-profit organization overseen by a Board of Directors and managed and administered by Schlumberger employees. It operates under two legal entities, the Schlumberger Foundation Inc., registered in 1954 in the United States and the Schlumberger Stichting Fund registered in 1985 in the Netherlands.

The first reference to a Foundation created in the United States was in the 1954 Schlumberger Annual Report as follows: “Through the years we have relied heavily on our universities as the source of the technical personnel to whom so much of our progress is due. As an acknowledgement of the essential role that these universities have played in our past growth and will play in our future, your Board of Directors has created the Schlumberger Foundation for the purpose of establishing scholarships and fellowships for scientific studies.”
Since its inception the Foundation has focused on funding a variety of programs in scientific education all over the world:

- University Endowments were established over a 23 year period starting in 1976 to finance Chairs at Rice and MIT in the United States and Cambridge in the United Kingdom, to name just a few.

- In 2003 the Foundation became a sponsoring partner with “Africa Array” established to create new geo-scientific research and training programs and rebuild existing ones in Africa with Africans for Africans.

- In 2005 “Lab in a Lorry” got under way as a joint initiative with the Institute of Physics bringing the opportunity to young people to explore science through hands-on experiments and attracting over 1,000 volunteers from the scientific world to share their knowledge.

- From 2005-2007 the Foundation had a partnership with United World Colleges (UW) to fund students from disadvantaged backgrounds with an interest and talent in science to study at UW colleges. A total of 21 students graduated from this program.

- In 2004, the Faculty for the Future program was launched to provide funding to women from emerging economies for advanced graduate study in the fields of science, technology, engineering and mathematics (STEM) in the best faculties for their discipline overseas. It is currently the sole program funded by the Schlumberger Foundation. The long term goal of the program is to address the gender gap in STEM disciplines by selecting the most talented female scientists, providing them with a unique opportunity to develop their skills, exposing them to vital international experience and networking, thereby training them to become future leaders, change agents and policy makers back in their home regions where they are ultimately expected to return. The Faculty for the Future program is growing each year and has become a powerful community that today stands at 405 pioneering women scientists from 68 countries.
Schlumberger Foundation is an independent non-profit arm of Schlumberger formed in 1954 and its role has evolved over time.

**Schlumberger Foundation key timelines**

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<thead>
<tr>
<th>Year</th>
<th>Events</th>
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<tr>
<td>1954</td>
<td>- Schlumberger Foundation formed in US</td>
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<td></td>
<td>- Provided scholarships to universities and students¹</td>
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<tr>
<td>1986</td>
<td>- Schlumberger Stichting Fund founded in Netherlands</td>
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<td></td>
<td>- Offered educational &amp; technical grants outside US in emerging countries²</td>
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<td></td>
<td>- Made &gt; $50m endowments in S&amp;T</td>
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<td>2004</td>
<td>- Schlumberger Foundation &amp; Stichting Fund integrate to share charter, board and operating name</td>
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<tr>
<td>2004 / 05</td>
<td>- Implemented five programs focused on supporting science education</td>
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<td></td>
<td>- Faculty for the Future evolved from Chairman’s speech in Oct. 2003</td>
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<tr>
<td>2010</td>
<td>- Focus for impact on the Faculty for the Future program</td>
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<tr>
<td>2011</td>
<td>- Positioned for growth; $50M donation from Schlumberger</td>
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¹. Students in Caltech, Carnegie Mellon, Georgia Tech, MIT, Harvard, Rice and Cambridge
². American University in Cairo, Institute of technology in Bandung, Indonesia to develop a program in Geophysics in 1985.
The Faculty For The Future (FFTF) program was set-up in 2004 to address the “under-representation” of women in Science & Technology.

Mission
■ To enable more women pursue scientific disciplines / role models and leaders
■ To help women play key roles in economic development of home countries—academia and public policy formulation
■ To stimulate economic development in home countries by building capacity in science & technology

Selection Criteria
■ Scientific talent
■ Relevance to home country
■ Leadership capabilities
■ Return to home country to pursue academic research & public policy
■ Study in top universities in their disciplines in advanced / OECD countries

Program Scope
■ Women from developing countries
■ Grants for PhDs and post docs in physical sciences & related disciplines
■ Forum for networking, role model building, communication and leadership development
Schlumberger Foundation Board

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Financial Accountant

Foundation Staff

Regina Hand
Governance and Administration Manager

Eve Millon
Communications and Community Manager
Faculty for the Future Selection Process

The online application web site opens in September of each year and closes by mid-November. The final selection of candidates is made at the Schlumberger Foundation Board in March of the following year.

The Selection Process is comprised of 4 distinct rounds.

Round 1
In Round 1 all applications are reviewed for general eligibility: i.e., completeness/coherency/overall quality, the relevance of the discipline chosen in line with the core objectives of the Faculty for the Future program and the scientific interest of the research proposal.

Round 2
In Round 2 a panel of approximately 30 scientists and employees from different Schlumberger Research Centers and locations around the world is invited to review a set of applications each.

Round 3
In general, 35% of the applications reviewed during the scientific round make it to Round 3. At this point of the process it is the Schlumberger Foundation Board Members who conduct telephone interviews with each of the applicants to gain more insight into each candidate.

Round 4
Round 4 takes place at the Schlumberger Foundation Board meeting held every March. Candidates are recommended for an award by each Board Member.
# Faculty for the Future Reviewers

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<thead>
<tr>
<th>NAME</th>
<th>TITLE</th>
<th>LOCATION</th>
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<tbody>
<tr>
<td>Dr. Najib ABUSALBI</td>
<td>Corporate University Relations Manager, Schlumberger</td>
<td>Houston, US</td>
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<tr>
<td>Dr. John AFILAKA</td>
<td>Reservoir Engineering Software Training Manager, Schlumberger</td>
<td>Abingdon, UK</td>
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<tr>
<td>Dr. Valerie ANDERSON</td>
<td>Senior Research Scientist, Schlumberger Gould Research Center</td>
<td>Cambridge, UK</td>
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<tr>
<td>Dr. Walid BEN ISMAIL</td>
<td>Senior Geomechanics Engineer, Schlumberger Drilling &amp; Measurements</td>
<td>The Woodlands, US</td>
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<tr>
<td>Dr. Soraya S. BETANCOURT</td>
<td>Senior Research Engineer, Schlumberger</td>
<td>Houston, US</td>
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<tr>
<td>Mr. Ravi CHHIBBER</td>
<td>Exploration Systems Advisor, Schlumberger</td>
<td>Houston, US</td>
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<tr>
<td>Dr. Sushmita DASGUPTA</td>
<td>Consulting Geologist</td>
<td>Houston, US</td>
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<tr>
<td>Dr. Jody Lynn DESTEPHANIS</td>
<td>General Counsel Wireline</td>
<td>Sugarland, US</td>
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<td>Mr. Henry EDMUNDSON</td>
<td>HR and Communications Advisor, Schlumberger Gould Research Center</td>
<td>Cambridge, UK</td>
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<td>Ms. Valerie EDOZIEN NWOGBE</td>
<td>NGA Special Projects Manager, Schlumberger</td>
<td>Lagos</td>
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<td>Dr. Jose G. FLORES</td>
<td>Advisor / EOR Technical Director, Schlumberger</td>
<td>Mexico</td>
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<tr>
<td>Dr. Marcelo FRYDMAN</td>
<td>SAM Unconventional Geomechanics Advisor, Schlumberger</td>
<td>Buenos Aires</td>
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<tr>
<td>Mr. Kais GZARA</td>
<td>LWD Petrophysics Domain Champion, Schlumberger Middle East SA</td>
<td>Dhahran</td>
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<tr>
<td>Dr. Susan HERRON</td>
<td>Scientific Advisor, Schlumberger Doll Research Center</td>
<td>Cambridge, US</td>
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<td>Dr. Abul JAMALUDDIN</td>
<td>NExT Business Manager, Schlumberger North America</td>
<td>Houston</td>
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<td>Dr. Fikri KUCHUK</td>
<td>Schlumberger Fellow and Chief Reservoir Engineer</td>
<td>Clamart</td>
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<td>Dr. Julius KUSUMA</td>
<td>Principal Scientist, Telemetry Research Leader, Schlumberger Doll Research Center</td>
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<td>Dr. Bernard MONTARON</td>
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<td>Kuala Lumpur</td>
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<td>Dr. Michaela NAGL</td>
<td>Consultant, Schlumberger Gould Research Center</td>
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<tr>
<td>Mr. Patrick NDURU GATHOGO</td>
<td>Laboratory Supervisor Petrology, Schlumberger Reservoir Laboratories</td>
<td>Houston</td>
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<tr>
<td>Dr. Justin OBILO</td>
<td>Seismic-Guided Drilling (SGD) Champion, Schlumberger Nort-America</td>
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<td>Houston</td>
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<tr>
<td>Mr. Ahmad YUNIARTO</td>
<td>Chairman Indonesia, Schlumberger</td>
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<tr>
<td>Dr. Sherry ZHU</td>
<td>Senior Research Scientist</td>
<td>Cambridge, US</td>
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Grant Evolution 2005–2014

FFTF Program Results (2004–2013)

- 62% 202 On Grant
- 19% 60 Finished & Home
- 19% 61 Finished Not Home

Total grant spend (USD Millions)
Cumulative number of grants

Source: FFTF program database (2004 to 2013)