Chavalmane Subbenaik SANMATHI

Home Country
India

Degree
Post-Doctorate in Polymer Chemistry

Expertise
Chemistry

Research Focus
Ceramic Dense Nano-Powders of Thermoelectric Oxides

Host University
National Graduate School of Engineering and Research Center, France

Fellowship Awarded
2006

Chavalmane Sanmathi was born in India and received her undergraduate degree in physics, chemistry and mathematics in 1999 from Kuvempu University, Karnataka. She earned her graduate degree in industrial chemistry from that institution in 2001, along with her PhD in polymer chemistry in 2004.

As a post-doctoral fellow at the National Graduate School of Engineering and Research Center (ENSICAEN) and Crystallography and Materials Sciences Laboratory (CRISMAT) in Caen, France, Chavalmane is focusing her research on helping to find alternative and environmentally friendly energy sources.

Thermoelectric materials that offer the potential to convert waste heat energy into electrical energy are widely recognized as having promise for power generation and for cooling of electronic devices used in advanced technology. Various materials can be employed as thermoelectrics including TE-oxides, which are regarded as superior candidates because they are chemically and thermally stable at high temperatures and can be used without deterioration of their performance due to oxidation.

Chavalmane is working to resolve the two most important challenges in the area of TE-oxides – thermal conductivity and energy conversion efficiency – by synthesizing the nano-powders of selected cobaltites and manganites using the sol-gel method and hydrothermal processes. By varying the sizes of crystallites, she is hoping to devise a mechanism for controlling electrical and thermal conductivity. If successful, her work may lead to critical advances in a host of technological applications.

When she completes her post-doctorate studies, Chavalmane intends to return to teach at Kuvempu University in India. She feels that science is not only a career, but also a way of life, full of fun and excitement, and she believes that it is important for women entering scientific careers to receive the encouragement of family and friends.