



Pinyu WU

Home Country
China

Degree
PhD in Physics

Expertise
Biopolymer Networks

Research Focus
3D Thermal Noise Imaging

Host University
The University of Texas at Austin, United States

Fellowship Awarded
2006

Pinyu Wu is the second of three daughters born to cotton farmers in a small village in central China. While most young girls in the area discontinued their education after middle school, Pinyu's parents worked hard on the farm to support their three daughters and thanks to their efforts all three have now graduated from college.

Pinyu obtained her Bachelor of Science degree in the Department of Modern Physics in 2003 at the University of Science and Technology of China in Hefei. She then entered The University of Texas at Austin in the United States where she graduated with her master's degree in physics in 2007 and where she has been a PhD candidate in physics since early 2008.

In Texas, Pinyu works with a biophysics group in the physics department. Her first project was measuring the non-conservative forces in optical tweezers. Optical tweezers, also called singlebeam gradient traps, are produced by a focused laser beam and are widely used by physicists and biologists to manipulate nanoparticles, as well as to measure the force generated in cellular processes.

Pinyu developed a new method to calculate the force field in an optical trap without assuming the functional form of the force field. She applied this method to both experimental and simulated data.

In the summer of 2008 she started a new project called three-dimensional thermal noise imaging. Using an optically trapped microsize particle as a probe, this imaging technique explores the 3D structure of biopolymers such as actin networks and microtubule networks. Force distribution in the network can also be mapped by studying the fluctuation of individual filaments.

When she completes her studies she intends to teach at the University of Science and Technology of China.