



**Sindhu SURESH**

**Home Country**  
India

**Degree**  
PhD in Electrical  
Engineering

**Expertise**  
Electrical and  
Electronics  
Engineering

**Research Focus**  
Radio Frequency  
Power Amplifiers

**Host University**  
Polytechnic  
University,  
United States

**Fellowship Awarded**  
2008

Sindhu Suresh was born in a village in the Kollam district of Kerala, India. Her father is a retired university administrator and she was the first technical graduate in her village, although she was followed by her younger brother and more recently by many others. She and her husband have one daughter.

She earned her Bachelor of Technology degree in electrical and electronics engineering in 1996 at Kerala University and her master's degree in electrical engineering at IIT Madras in India in 1999. She is pursuing her PhD at Polytechnic University in Brooklyn, New York as well as teaching courses there. Her research focuses on the design and implementation of a digitally controlled polar envelope modulator for radio frequency power amplifiers using a switch mode power supply running at switching frequencies of 100 MHz and above. Her objective is to develop a micro-meter square chip that makes wireless devices more efficient by enhancing battery life.

Switch mode power converters provide one of the most efficient methods to regulate analog and digital supplies for battery powered radio frequency transceivers, but the conflicting requirements of higher linearity and increased power efficiency pose an enormous challenge for designers of power amplifiers.

Sindhu hopes to overcome this challenge by designing and fabricating a Buck converter with a one-cycle controller as the inner loop and a PI controller as the outer loop. The feedback controller is fabricated using a current conveyor model, which is a major breakthrough in electronics. Energy-efficient radio frequency power amplifiers are critical to achieving longer battery life because they dominate power consumption in wireless devices.

Sindhu says that teaching is her passion, and that she plans to teach at Kerala University in India.