



Xiuhua Si

Home Country
China

Degree
PhD in Aerospace
Engineering

Expertise
Continuum
Mechanics, Materials
Science and
Thermodynamics

Research Focus
Interface of
Crystallines;
Mechanical Behavior
of Ferromagnetic
Materials; and
Single-Walled Carbon
Nanotubes

Host University
Texas A&M University,
United States

Fellowship Awarded
2005

Xiuhua Si was born and raised in Shandong Province, China. The fourth of five children, three of whom have earned master's degrees or higher, she is married with one son.

Xiuhua obtained her bachelor's degree in environmental engineering and her master's in chemical engineering at Dalian University of Technology in the small coastal city of Dalian, China, where she developed her research interest in several engineering fields. As a PhD student in aerospace engineering at Texas A&M University, where she graduated in 2005, she had a diverse range of research interests.

Currently teaching in Calvin College, Michigan, she is working on three different research projects.

Her first project is the theoretical study of surface tension on the interface of crystallines. Xiuhua and her colleagues have developed a model that allows them to predict the interfacial energy of metal and metal oxide interface, particularly for silicon and silicon dioxide interface, which is one of the most important materials in the semiconductor industry.

A second project involves the mechanical behavior of ferromagnetic materials under stress and electro-magnetic fields. Based on a theory she helped develop, she and her university colleagues are designing a single-crystal actuator. This will save time and energy along with the materials used to calibrate multi-crystalline actuators.

Her third project is a theoretical study of the mechanical properties of the composite of single-walled carbon nanotubes and polymers. Single-walled nanotubes exhibit important electric properties not shared by multi-walled carbon nanotube variants and are the most likely candidates for miniaturizing electronics beyond the micro-electromechanical scale currently used in modern electronics.