



Meet the Engineer!



A material engineer develops new and improved composite materials by working with wood and other non-wood fiber sources.

Dr. Zhiyong Cai

Supervisory Research Material Engineer

Ph.D., Purdue University
USDA Forest Service engineer



<http://www.naturalinquirer.org>

Important Engineer Characteristics:

The most important skills for my career are persistence, a background in physics, creativity, passion, and good teamwork.

Example of a simple question I have tried to answer:

Why do wood panels have a warping problem?

The moisture in the environment around wood affects performance of wood. Wood is able to attract and hold water molecules. When a wood panel has uneven amounts of water content, the inner layers will expand or shrink differently. The expanding and shrinking inside wood will cause warping.

Technology or equipment used in my work:

An x-ray densitometer passes x-rays through wood samples. The intensity of the x-ray radiation beam after passing through the wood sample provides a profile of the density of the wood sample.

Most Exciting Work

I invented a method that uses parallel radiation beams. The radiation beams continuously scan wood to determine moisture. Using the strengths of the radiation beam, I can calculate the moisture in the wood by comparing the results of the density profile of the same wood when dried in the oven.

When did you know you wanted to be an engineer?

In high school, I was very curious about Isaac Newton's second law. This law states that the acceleration of an object is produced by a force acting on the object. The more I learned about this law, the more questions I had. It was my dream to become a engineer so I could explore the "unknowns" in the world.