

**Richardson Chair  
in Wood Science and Forest Products  
John Nairn**



**W**hen John Nairn, professor of wood science, came to OSU from the University of Utah in 2006, it was not only to take a new position as the Richardson Chair in Wood Science and Forest Products, but to take a different path in his research. Before he joined the College of Forestry, Nairn had no formal experience working with wood; his expertise was in materials science and engineering. “This is a new direction for me although much of the science is the same between the two disciplines,” he explains. “In wood science, you have a lot of the same issues as with the other materials; it’s just that they’ve been around a lot longer. While the plastics and composites industries are only several decades old, plywood has been around for more than 100 years.”

Nairn is quick to point out that on one level, wood actually behaves like a composite, as well. “If you cut a cross section from a tree, you will see growth rings, which are different layers with different properties. They combine to make the structure of wood much like layers or plies combine to make laminated composites”

Wood is a very complex and important material, and it doesn’t always get the recognition that it deserves, says Nairn, perhaps because it’s so common. Even scientists may undervalue wood as a subject of study. “People think that because we’ve been using wood for thousands of years, we have it completely figured it out,” he says. “That’s simply not the case. In many respects, it’s a more complicated material than plastics or metals.”

Nairn is currently studying issues related to how wood and wood composites fracture and break. With the help of several students, he combines experiments and modeling in order to study crack propagation on medium density fiberboard. “The fracture surface is often fairly complicated,” he explains. “In plastic or metal, it’s easy to see a crack propagate, but in wood, it’s necessary to use digital imaging techniques. From that data, we can measure the stress and strain placed on the material.”

The Richardson Chair in Wood Science and Forest Products, one of three chairs created through the Ward K. Richardson Family Forestry Faculty Endowment, has been important to Nairn’s research. “It allows me to pour my time into studying this basic science,” he says, “and, in working to understand this, we will have a better grasp of a host of related issues.” The funding provided by the chair is particularly appreciated because it can be challenging to get funding in the wood science field, he adds. “Not only that, but to also have the advantages of working at a university is truly fantastic! I get to do all of the things I love: challenging experiments, analytical modeling, and numerical modeling. It’s really been a pleasure to work at OSU.”

*John Nairn using a home-made micro-tensile tester to study and model the mechanical properties of wood and wood composites*

