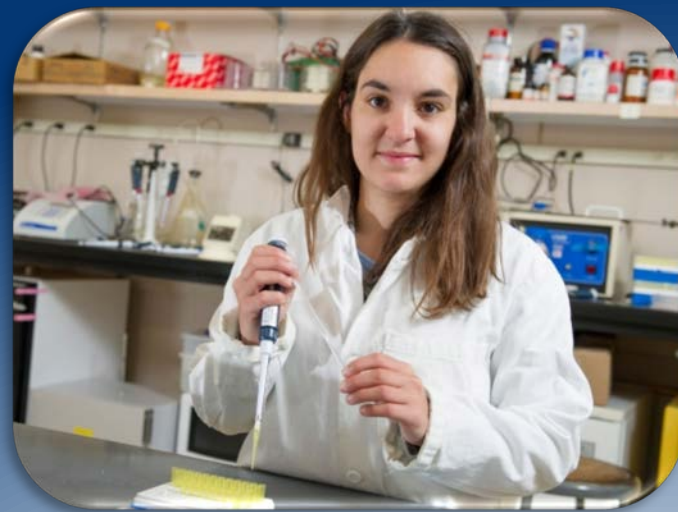# Sarah Mailhiot

Doctoral Student in the Department of Mechanical and Industrial Engineering

Receives prestigious National Science Foundation Fellowship

Fellowship to Study in New Zealand

Sarah Mailhiot, a Montana State University doctoral student in the Department of Mechanical and Industrial Engineering in the College of Engineering, has been awarded a prestigious fellowship from the National Science Foundation that is designed to foster future international scientific collaborations.

The NSF's East Asia and Pacific Summer Institutes fellowship program introduces graduate students to East Asia and Pacific science and engineering in the context of a research setting to help students initiate scientific relationships that will better enable future collaboration with foreign counterparts. Selected students participate in research experiences at host laboratories in Australia, China, Japan, Korea, New Zealand, Singapore or Taiwan.

Mailhiot, of Oak Forest, Illinois, came to MSU in 2013 as a molecular biosciences fellow after earning her bachelor's and master's degrees in biomedical engineering at Rensselaer Polytechnic Institute in Troy, New York. As an EAPSI fellow, she will travel in June to New Zealand's Victoria University of Wellington, where she will spend nearly three months working in the lab of Petrik Galvosas, a senior lecturer in the university's School of Chemical and Physical Sciences and an expert in magnetic resonance imaging technology.

Using MRI technology, Mailhiot will study how collagen, one of the proteins found in cartilage, degrades when the arthritis condition is mimicked. This project will show how the damage to collagen is related to the effect of arthritis in human cartilage.

"We're going to make a gel out of collagen and see what it looks like on MRI, because right now there is little understanding of what collagen looks like on MRI," Mailhiot said. "With this, we can see how the collagen is affected by arthritis and if MRI can detect it."

The research aligns with Mailhiot's work at MSU in which she studies the possibility of using MRI technology to diagnose arthritis in its early stages so it can be treated more successfully. Mailhiot researches in the Magnetic Resonance Microscopy lab and is advised by Ron June, assistant professor in the Department of Mechanical and Industrial Engineering; Jennifer Brown, assistant professor in the Department of Chemical and Biological Engineering and Joseph Seymour, co-director of the Magnetic Resonance Microscopy lab and professor in the Department of Chemical and Biological Engineering.

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