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Comparing Different Techniques to Study Articular Cartilage

Professor **Yang Xia**, of the **Department of Physics**, uses a variety of experimental techniques to study the structure and function of articular **cartilage**, with the ultimate goal of providing better diagnosis and treatment of **degenerative arthritis**. In a recent paper published by the **Journal of Biomedical Optics** (Volume 13, Article Number **054034**, 2008), Xia and his colleagues at the University of California Irvine compare two methods: polarized light microscopy (the established method) and polarization-sensitive optical coherence tomography (PS-OCT, a newer technique). They conclude that "normal topographical variations in the collagen architecture of articular cartilage within a joint have a profound influence on the optical phase retardation detected by PS-OCT imaging, and therefore must be understood and mapped for specific joints before PS-OCT imaging can be used for the evaluation of the health status of individual joint surfaces." Xia's laboratory is funded by multiple grants from the **National Institutes of Health**. Coauthor Patrick Hoover graduated in May 2008 with a **BS in physics** from **Oakland University**, and participated in the physics department's Research Experiences for Undergraduates program funded by the **National Science Foundation**.

SUMMARY

Professor Yang Xia, of the Department of Physics, uses a variety of experimental techniques to study the structure and function of articular cartilage, with the ultimate goal of providing better diagnosis and treatment of degenerative arthritis.

Created by Heather Mattiello (heather.mattiello@caretech.com) on Tuesday, March 10, 2009

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