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**Ultrashort Pulse Microscopy for Three-Dimensional, *In-Vivo* Biological Imaging** BRIAN KELLY, Texas A&M — As laser technology continues to advance, optical imaging is becoming more prevalent in biological applications. Commonly used methods, such as confocal microscopy, offer high resolution and three-dimensional imaging capabilities, but often harm the sample. Thus, there is a need for methods that offer such advantages while doing no harm. Ultrashort Pulse Microscopy (UPM), an optical imaging method utilizing sub 10-fs laser pulses, may be the solution to this problem. UPM offers the ability to obtain multimodal, three-dimensional in-vivo images of a biological sample. In this talk, we will discuss the relevant theory, instrumentation and implementation of our UPM system.

Brian Kelly  
Texas A&M

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