

**5<sup>th</sup> December 2014 – 14:00**  
CFEL bldg. 99 , seminar rooms I-III

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## **Making attosecond pulses: a serendipitous tale**

Attosecond pulses are the shortest bursts of coherent light ever made. They offer the promise of probing the motion of electrons in atoms, molecules and solids on their natural time scale, which is the attosecond. Generating attosecond pulses means converting femtosecond infrared radiation to attosecond extreme ultraviolet pulses, which happens when an atomic gas is exposed to intense, ultrafast pulse. As I will explain, attosecond pulses result from the interplay of microscopic and macroscopic effects, and this complexity opens the door to serendipity (or happy accidents). As an example, I will discuss the work we did at LSU in the attosecond theory group to understand how the first isolated attosecond pulses were made in 2001-- something that should not have been possible according to what was known at the time. I will also show examples of how the inherent synchronization of attosecond pulses to their “parent” infrared pulses can be exploited to make attosecond spectroscopy a reality.

