Anne Marie March

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Current Position

- Assistant Physicist, Chemical Sciences and Engineering Division, Argonne National Laboratory

Background

- 2009-2012 Postdoctoral Appointee, X-ray Science Division, Argonne National Laboratory
- 2009 Ph.D., Physics, Stony Brook University

Interests

- I'm interested in photo-induced dynamics in atoms and molecules. Over the past several years I have built up a high-duty-cycle laser-pump, x-ray-probe setup at Sector 7 that allows for high-fidelity, ultrafast (80 ps resolution) x-ray absorption and emission measurements on photo-excited molecules in solutions. The MHz repetition rate of the laser allows for efficient use of the MHz rate APS x-rays and the utilization of x-ray techniques that are flux demanding (such as emission spectroscopy). The method is applicable to many different samples and x-ray techniques. I have carried out time-resolved XMCD measurements on solid samples at Sector 4 using the MHz laser system and I have done time-resolved experiments at Sector 14 on gas phase molecular beam targets as well.

Goals

- The timing structure of the APS, with well separated and evenly spaced bunches, is quite optimal for time resolved measurements and makes the APS the premier location for time resolved x-ray experiments among synchrotrons world wide. I wish to be a spokesperson for all those carrying out experiments that take advantage of the timing structure at the APS and ensure that this unique characteristic is preserved as the APS moves forward

with the upgrade. The APS holds promise of being a leader in structural dynamics on timescales ~100 ps and longer, complementing the femtosecond scale studies being made possible at x-ray free electron lasers.