

## ABSTRACT

### STRONG-FIELD PHYSICS IN THE X-RAY REGIME

Louis DiMauro

*The Ohio State University  
Department of Physics*

The advent of x-rays sources with unprecedented intensity will enable the study of nonlinear physics in the high frequency regime. In contrast to low frequency strong-field physics where valence electrons react to the optical field, at high frequency the atom will be ionized from the inside out. The question remains as to whether the atomic response to x-rays will be adequately described by low-order perturbation theory or necessitate a nonperturbative description which is more commonly used at low-frequency. In this talk, these issues will be raised along with a status report on the efforts of the AMOS team at LCLS and a discussion of other possible hard x-ray sources.