Linda Young

Exploring Extreme X-ray Interactions

Argonne NATIONAL LABORATORY

The recent advent of x-ray free electron lasers (FELs) has dramatically altered the landscape of x-ray science. With the availability of billion-fold increased intensity, pulse durations on the femtosecond time scale, and full transverse coherence, there is an opportunity to "watch" processes such as chemical reactions in complex systems in 3D with atomic spatial and temporal resolution. However, fully harnessing this potential requires some understanding and control of ultra-intense x-ray induced phenomena, e.g., nonlinear x-ray processes, x-ray induced transparency, and stimulated emission. This talk will review our understanding of these phenomena in systems of increasing complexity and discuss the road toward 3D dynamic imaging at FELs and next-generation storage rings.

Linda Young obtained her S.B. from MIT and Ph.D. from the University of California, Berkeley. She is a Distinguished Fellow at Argonne National Laboratory where she has served as the Director of the X-ray Science Division and Group Leader for Atomic Physics. Her research activities have included fundamental studies of x-ray interactions with atoms and molecules, precision measurements of atomic structure, and development of polarized targets for electron scattering studies of nuclear structure. She has been the Chair of the Division of Atomic, Molecular, and Optical Physics of the American Physical Society, Chair of the Scientific Advisory Committee for the LCLS, a Distinguished Travelling Lecturer for the Division of Laser Science, and a Visiting Fellow at JILA of the University of Colorado. She presently serves on the Scientific Advisory Committees for DESY, European-XFEL, Swiss Light Source, and Helmholtz-Zentrum Berlin. She has co-authored over 130 publications and is a Fellow of the American Physical Society.

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