



Contribution ID: 382

Type: **Invited Speaker / Conférencier invité**

Toward pump-probe experiments of defect dynamics with pulsed ion beams

Thursday 19 June 2014 10:00 (30 minutes)

A novel linear induction accelerator, the Neutralized Drift Compression eXperiment-II (NDCX-II), is currently being used at Berkeley Lab to explore intense beam physics and intense-beam material interactions. For the latter topic, fluences range from overlapping cascades of lattice disorder to eventually heating solids to ~ 1 eV on a timescale similar to the hydrodynamic expansion. This accelerator is designed to deliver intense (up to 3×10^{11} ions/pulse), 1 to ~ 600 ns duration pulses of 0.13 to 1.2 MeV lithium ions at a rate of about 2 pulses per minute onto 1 to 10 mm scale target areas. At lower beam power densities, the short excitation pulse with tunable intensity and time profile enables pump-probe type studies of defect dynamics in a broad range of materials. We briefly describe the accelerator concept and design, present results from beam pulse shaping experiments and discuss examples of pump-probe type studies of defect dynamics using Li⁺ ions.

Author: SEIDL, Peter (LBNL)

Co-authors: Dr MINOR, Andrew M. (Lawrence Berkeley National Laboratory and University of California, Berkeley); Dr PERSAUD, Arun (Lawrence Berkeley National Laboratory); Dr GUO, Hua (Lawrence Berkeley National Laboratory); Dr HOSEMANN, Peter (Lawrence Berkeley National Laboratory and University of California, Berkeley); Dr SCHENKEL, Thomas (Lawrence Berkeley National Laboratory); Dr WALDRON, William L. (Lawrence Berkeley National Laboratory)

Presenter: SEIDL, Peter (LBNL)

Session Classification: (R1-3) Ion Beam Analysis and Modification - DCMMP / Analyse et modification de faisceaux d'ions - DPMCM

Track Classification: Condensed Matter and Materials Physics / Physique de la matière condensée et matériaux (DCMMP-DPMCM)