



Contribution ID: 386

Type: **Poster**

The New DynaMax endstation at the FemtoSpex Slicing facility for ultrafast dynamics

Tuesday, 18 September 2018 17:15 (15 minutes)

Ultrafast magnetization dynamics is a complex and fascinating field in fundamental physics and motivates studies on new magnetic recording techniques based on, e.g., all-optical switching (AOS) of magnetic order [1,2]. For our studies on photo-induced magnetization dynamics in rare-earth metals [3,4] the FemtoSpex slicing beamline at BESSY II is ideal since magnetization can be probed state- and element-specific with a time-resolution of 130 fs. In order to push the research on ultrafast dynamics to a new level the BMBF-financed DynaMax project was initiated. This project is a collaboration between the HZB, MBI and FU Berlin to build up a complete new endstation for the slicing beamline. We will present details of this innovative setup and new feasibilities for future studies. The operation will start in summer 2018 and our planned investigations will benefit from high magnetic fields with variable orientation and high ramping rates. The new endstation will further realize simultaneous measurement of magnetic dynamics in transmission, scattering and holography, back-pump front-probe geometry, THz experiments and in-situ sample preparation of complex magnetic systems with molecular beam epitaxy and sputter deposition.

[1] T. A. Ostler et al., Nat. Commun. 3, 666 (2012).

[2] I. Radu et al., Nature 472, 205 (2011).

[3] M. Wietstruk et al., Phys. Rev. Lett. 106, 127401 (2011).

[4] K. Bobowski et al., J. Phys.: Condens. Matter 29, 234003 (2017).

Primary authors: Dr THIELEMANN-KÜHN, Nele (Fachbereich Physik, Freie Universität Berlin, Arnimallee 14, 14195 Berlin); Dr TRABANT, Christoph (Fachbereich Physik, Freie Universität Berlin, Arnimallee 14, 14195 Berlin); Mr GLEICH, Markus (Fachbereich Physik, Freie Universität Berlin, Arnimallee 14, 14195 Berlin); Mr BOBOWSKI, Kamil (Fachbereich Physik, Freie Universität Berlin, Arnimallee 14, 14195 Berlin); Mr HENNECKE, Martin (Max-Born-Institut im Forschungsverbund Berlin e.V., Max-Born-Straße 2A, 12489 Berlin); Dr NOLL, Tino (Max-Born-Institut im Forschungsverbund Berlin e.V., Max-Born-Straße 2A, 12489 Berlin); Dr ENGEL, Dieter (Max-Born-Institut im Forschungsverbund Berlin e.V., Max-Born-Straße 2A, 12489 Berlin); Dr RADU, Ilie (Max-Born-Institut im Forschungsverbund Berlin e.V., Max-Born-Straße 2A, 12489 Berlin); Dr PONTIUS, Niko (Helmholtz-Zentrum Berlin für Materialien und Energie GmbH, Albert-Einstein-Straße 15, 12489 Berlin); Dr SCHÜSSLER-LANGEHEINE, Christian (Helmholtz-Zentrum Berlin für Materialien und Energie GmbH, Albert-Einstein-Straße 15, 12489 Berlin); Prof. EISEBITT, Stefan (Max-Born-Institut im Forschungsverbund Berlin e.V., Max-Born-Straße 2A, 12489 Berlin); Prof. WEINELT, Martin (Fachbereich Physik, Freie Universität Berlin, Arnimallee 14, 14195 Berlin)

Presenter: Dr THIELEMANN-KÜHN, Nele (Fachbereich Physik, Freie Universität Berlin, Arnimallee 14, 14195 Berlin)

Session Classification: Poster session 2

Track Classification: P1 Instrumentation and methods