



The Max-Born Institute for Nonlinear Optics and Short Pulse Spectroscopy (MBI) conducts basic research in the field of nonlinear optics and ultrafast dynamics arising from the interaction of light with matter and pursues applications that emerge from this research. It develops and uses ultrafast and ultra-intense lasers and laser-driven short-pulse light sources in a broad spectral range in combination with methods of nonlinear spectroscopy. The spectral range includes in particular XUV radiation and soft x-rays, where experiments at in-house sources are complemented with the use of accelerator driven sources such as free electron x-ray lasers.

With its research, MBI fulfils a national mission and is an integral part of the international scientific community.

The Max-Born-Institute awards at **the earliest possible date** a job as

PhD student (m/f)

Job profile:

Ultrashort light pulses can deterministically reverse the magnetisation of thin magnetic films without the need for any external magnetic fields.

This fascinating observation is not only of great interest for data storage applications, where in the future individual bits may be switched with light pulses rather than with magnetic fields as employed today. It is also one of the most intriguing phenomena in current solid state research; the underlying microscopic processes are still poorly understood and discussed controversially. The goal of the offered PhD position is to experimentally explore the fundamental mechanisms on their intrinsic ultrafast time and nanometre spatial scale.

We have recently setup a unique experiment based on high harmonic generation to directly access the element-selective magnetic response of thin film systems. A high energy, ultrashort laser pulse generates the spectrum in the extreme ultraviolet spectral range to cover the M-edge resonances of, e.g., Mn, Fe, Co and Ni, allowing to simultaneously measure the response of functional, multi-element magnetic systems. With the short wavelength of the radiation on the order of 20 nm ultrafast magnetic processes on the nanoscale also become accessible. Via magnetron sputtering we can prepare a wide range of relevant magnetic samples in our group.

With our state of the art technical equipment, dedicated supervision, a welcoming team and the opportunities offered by the Graduate School of the CRC/TRR, we offer a productive environment for a successful Ph.D. thesis.

Requirements:

The candidate is expected to have acquired a Master of Science or diploma degree in physics with above average marks. She/He has hands-on experience in optical laboratory work. First experience with ultrashort laser pulses, extreme-ultraviolet radiation, vacuum technology and data analysis software (e.g. Matlab, Phyton) is a plus.

Offer:

The researcher position is available at the earliest possible date and initially limited to 3 years. The payment is according to the German TVöD salary scheme for scientists in public research institutions (75%).

If equally qualified, severely handicapped persons are given preference. MBI is an equal opportunity employer and places particular emphasis on fostering career opportunities for women. Qualified women are therefore strongly encouraged to apply.

MBI supports the reconcilability of family and working life and is certified as family-friendly by the "family audit".

Please send your application, including cover letter, curriculum vitae, certificates and description of previous professional activities electronically to Prof. Dr. Stefan Eisebitt (eisebitt@mbi-berlin.de) or by Mail to Max-Born-Institut für Nichtlineare Optik und Kurzzeitspektroskopie, Max-Born-Straße 2a, 12489 Berlin, Germany, c/o Prof. Dr. Eisebitt quoting this announcement. The deadline for applications is **20.02.2018**

For further information about the position please contact Dr. Korff Schmising (Korff@mbi-berlin.de, Tel: 6392-1372).

<http://www.mbi-berlin.de/de/research/projects/3.2/topics/index-top4.html>

<http://www.trr227.de>

■ Direktor Bereich A

Prof. Dr. Marc Vrakking

■ Direktor Bereich B

Prof. Dr. Stefan Eisebitt

■ Direktor Bereich C

Prof. Dr. Thomas Elsässer

