

Preface

This volume on Ultrafast Magnetism is a collection of articles presented at the international “Ultrafast Magnetization Conference” held at the Congress Center in Strasbourg, France, from October 28th to November 1st, 2013. This first conference, which is intended to be held every two years, received a wonderful attendance and gathered scientists from 27 countries in the field of Femtomagnetism, encompassing many theoretical and experimental research subjects related to the spins dynamics in bulk or nanostructured materials. The participants appreciated this unique opportunity for discussing new ideas and debating on various physical interpretations of the reported phenomena. The format of a single session with many oral contributions as well as extensive time for poster presentations allowed researchers to have a detailed overview of the field.

Importantly, one could sense that, in addition to studying fundamental magnetic phenomena, ultrafast magnetism has entered in a phase where applied physics and engineering are playing an important role. Several devices are being proposed with exciting R&D perspectives in the near future, in particular for magnetic recording, time resolved magnetic imaging and spin polarized transport, therefore establishing connections between various aspects of modern magnetism. Simultaneously, the diversity of techniques and experimental configurations has flourished during the past years, employing in particular Xrays, visible, infra-red and terahertz radiations. It was also obvious that an important effort is being made for tracking the dynamics of spins and magnetic domains at the nanometer scale, opening the pathway to exciting future developments. The concerted efforts between theoretical and experimental approaches for explaining the dynamical behaviors of angular momentum and energy levels, on different classes of magnetic materials, are worth pointing out. Finally it was unanimously recognized that the quality of the scientific oral and poster presentations contributed to bring the conference to a very high international standard.

The organization of this conference has greatly benefitted from dedicated people. First we thank our sponsors for making the event possible. Let us mention institutions like the European Research Agency (Research Advanced Grant ATOMAG),

the French Ministry of Education and Research (Equipex UNION and Labex NIE), the National Scientific Research Center in France (CNRS), the University of Strasbourg and the University of Kaiserslautern. We acknowledge our friendly industrial partners who also contributed significantly to the success of the conference: Coherent, Amplitude Technologies, Newport, Fastlite, Zhinst, Femtolasers, Acalbf. The local and international committee had to review 115 contributions which appear to be an excellent up-to-date condensate of the actual research and development in ultrafast magnetism. Our special thanks go in particular to Drs. Nabila Kadiri and Mircea Vomir (CNRS, University of Strasbourg) the organization, the web site as well as the preparation of this volume.

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