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Multiphoton Processes and Attosecond Physics

Proceedings of the 12th International Conference on Multiphoton Processes (ICOMP12) and the 3rd International Conference on Attosecond Physics (ATTO3)

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Preface

This volume compiles research papers presented at the 12th International Conference on Multiphoton Processes (ICOMP12) and the 3rd International Conference on Attosecond Physics (ATTO3), held consecutively during July 3–8, 2011, at the same venue in Sapporo, Hokkaido, Japan.

The ICOMP conference series has a long history of 34 years. The first meeting was held in 1977 in Rochester, USA, and it has since been held every 3 years in various parts of the world: Budapest, Hungary (1980), Crete, Greece (1984), Boulder, USA (1987), Paris, France (1990), Quebec, Canada (1993), Garmisch-Partenkirchen, Germany (1996), Monterey, USA (1999), Crete, Greece (2002), Orford, Canada (2005), and Heidelberg, Germany (2008). This conference series has been essential in deepening our understanding of multiphoton phenomena. Indeed, it is no exaggeration to say that the scientific basis of intense laser science in the recent years has been established through the exchanges of ideas fostered by the ICOMP conferences.

The ATTO conference series, established in 2007 in Dresden, Germany, is designed to promote the newly emerging research field of attosecond science. The second conference was held 2 years ago in Kansas, USA. Special emphasis has been placed on attosecond pulse generation and its application as well as on the theoretical understanding of attosecond phenomena.

As both ICOMP12 and ATTO3 were scheduled to be held in Japan in 2011, and as they could share a variety of common topics in the rapidly developing research fields of ultrafast laser science, we decided to hold these two conferences together as a joint event, with a one-day overlap in their programs.

More than 180 oral and poster papers were presented in total, with participants arriving from more than 20 countries and regions. It is a tremendous honor for us that these two conferences attracted such a large number of attendees, particularly in light of the chain of disasters that have struck Japan, starting with the historic earthquakes of March 11, 2011. Indeed, as many as 67 of the presentations given have been turned into proceedings papers and contributed to this volume, reflecting the keen interest and excitement that were shared among all at the joint conference.

During their time in Hokkaido, the attendees enjoyed oral and poster presentations at the forefront of the rapidly developing research fields, and engaged in fruitful discussions, surrounded by the heritage of the centuries-old campus of Hokkaido University. Animated discussions continued as the participants enjoyed dinner at the Sapporo Biergarten, and made a trip to Otaru. We believe both ICOMP12 and ATTO3 have served to stimulate international research cooperation and exchanges.

Further information on the conference, including the lists of invited papers and contributed oral and poster papers, can be found on our website at: http://www.icomp-atto.org/.

We would like to thank Professor See Leang Chin, Honorary Chair of ICOMP12, for his invaluable presence and contribution to the discussions. We also thank all of the invited speakers of ICOMP12 and ATTO3 for their wonderful presentations.

The programs were organized by the international organizing committees of ICOMP12 and ATTO3, listed below. We would like to thank all of our fellow committee members for their commitment and generous contribution of their time.

Members of the ICOMP International Organizing Committee: Pierre Agostini (Ohio State University, USA); André D. Bandrauk (University of Sherbrooke, Canada); Wilhelm Becker (MBI, Germany); Joachim Burgdörfer (Vienna University of Technology, Austria); See Leang Chin (Laval University, Canada); Eric Constant (University of Bordeaux, France); Paul Corkum (University of Ottawa/NRC, Canada); Mikhail Federov (Moscow State University, Russia); Misha Ivanov (Imperial College, UK); Henry Kapteyn (JILA, University of Colorado, USA); Ferenc Krausz (MPI of Quantum Optics, Germany); M. Krishnamurthy (TIFR, India); Panagiotis Lambropoulos (IESL-FORTH, Greece); Anne L'Huillier (Lund University, Sweden); Ruxin Li (SIOM, China); Chii-Dong Lin (Kansas State University, USA); Katsumi Midorikawa (RIKEN, Japan); Mauro Nisoli (CNR-INFM/Politecnico of Milan, Italy); Jan M. Rost (MPI for the Physics of Complex Systems, Germany); Pascal Salieres (CEA-Saclay, France); Henrik Stapelfeldt (Aarhus University, Denmark); Kiyoshi Ueda (Tohoku University, Japan); Joachim Ullrich (MPI for Nuclear Physics, Germany); Marc Vrakking (MBI, Germany); Barry Walker (University of Delaware, USA); Ian Williams (Queen's University Belfast, UK); Kaoru Yamanouchi (The University of Tokyo, Japan).

Members of the ATTO International Organizing Committee: Zenghu Chang (Kansas State University, USA); Dimitrios Charalambidis (FORTH-IESL, Greece); Paul Corkum (University of Ottawa/NRC, Canada); Louis DiMauro (Ohio State University, USA); Pedro Echenique (Univeristy of the Basque Country, Spain); Henry Kapteyn (JILA, University of Colorado, USA); Ursula Keller (ETH Zurich, Switzerland); Ferenc Krausz (MPI of Quantum Optics, Germany); Andy Kung (IAMS, Taiwan); Stephen Leone (LBNL/University of California Berkeley, USA); Anne L'Huillier (Lund University, Sweden); Chii-Dong Lin (Kansas State University, USA); Lars Madsen (Aarhus University, Denmark); Jonathan P. Marangos (Imperial College, UK); Deepak Mathur (ITFR, India); Katsumi

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Also essential to the success of this joint conference were the efforts of the local organizing committee members, listed below. Our gratitude goes to each of them, as well as Yusuke Furukawa, Tsuneto Kanai, Yosuke Kojima, Pengfei Lan, Amani Abdolreza, Reika Kanya, Katsunori Nakai, Erik Lötstedt, and our three secretaries, Takiko Wakabayashi, Mihoshi Abe, and Chie Sakuta, who have helped organize the event and worked hard to make everything run as smoothly as possible.

Members of the ICOMP Local Organizing Committee: Yuji Fukuda (Japan Atomic Energy Agency); Koji Hatanaka (The University of Tokyo); Akiyoshi Hishikawa (Nagoya University); Tetsuya Ishikawa (RIKEN); Atsushi Iwasaki (The University of Tokyo); Tsuyoshi Kato (The University of Tokyo); Hirohiko Kono (Tohoku University); Takashi Nakajima (Kyoto University); Nobuhiro Ohta (Hokkaido University); Taro Sekikawa (Hokkaido University); Eiji Takahashi (RIKEN); Kiyoshi Ueda (Tohoku University).

Members of the ATTO Local Organizing Committee: Koji Hatanaka (The University of Tokyo); Kenichi Ishikawa (The University of Tokyo); Jiro Itatani (The University of Tokyo); Atsushi Iwasaki (The University of Tokyo); Toru Morishita (The University of Elctro-Communications); Yasuo Nabekawa (RIKEN); Kazutaka Nakamura (Tokyo Institute of Technology); Kenji Ohmori (Institute for Molecular Science); Nobuhiro Ohta (Hokkaido University); Tomoya Okino (The University of Tokyo); Taro Sekikawa (Hokkaido University).

Last but not least, we would like to thank the following organizations for their generous sponsorship, which has made such a memorable occasion possible.

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We feel that the ever-expanding frontiers of multiphoton processes and of attosecond physics have been exhibited well at the lively ICOMP12–ATTO3 conference. We hope that this conference and the current volume of the proceedings series contribute to further new developments in this interdisciplinary field of research.

Tokyo, Japan — Kaoru Yamanouchi
Saitama, Japan — Katsumi Midorikawa

Group photos of the participants at ICOMP12 (top) and ATTO3 (bottom).

Scenes from the ICOMP12-ATTO3 joint conference.