

## PREFACE

The 21st International Conference on Atomic Physics (ICAP 2008) was held July 27 — August 1, 2008 at the University of Connecticut, Storrs, CT, USA. Approximately 600 participants from 36 countries attended. This conference was part of an ongoing series of conferences devoted to fundamental studies of atoms, broadly defined. A Web site with the Conference Program, Abstracts, Proceedings and other archival information can be found at: <http://www.phys.uconn.edu/icap2008/>.

The ICAP papers encompass forefront research on basic atomic, molecular and optical (AMO) physics, emphasizing atoms and their interactions with each other and with external fields, including various kinds of laser fields. These meetings grew out of the molecular beams conferences of the Rabi group. The first ICAP was held at NYU in 1968. Later conferences have been held in all even-numbered years, alternating between North America and other locations, including Europe and recently Brazil, with the next conference planned for Cairns, Australia in 2010. The Web site for the Cairns meeting is: <http://www.swin.edu.au/icap2010/>. The growth of ICAP in recent years reflects the health and vitality of the AMO field and the continuing emergence of exciting and often surprising new developments and connections with other areas of physics.

Historically, topics have included quantum electrodynamics, tests of fundamental symmetries, precision measurements (including atomic clocks and fundamental constants), laser spectroscopy, ultracold atoms and molecules, Bose-Einstein condensates, degenerate Fermi gases, optical lattices, quantum computing/quantum information with atoms and ions, coherent control, and ultrafast and intense field interactions. As per tradition, all 50 invited talks were plenary, with approximately 400 contributed papers presented at one of three afternoon poster sessions. The program included lectures by Nobel Laureates Phillips, Cornell, Glauber, Chu and Ketterle, as well as two in memoriam talks, commemorating the scientific lives and broad impact on atomic physics of Willis Lamb and Herbert Walther. Two

“hot topics” sessions of five invited papers each were held, emphasizing the most recent research and including the 2008 winner of the IUPAP Young Scientist Prize in this area of physics. The conference was preceded by a one-week Summer School for new AMO researchers, organized by the Harvard-MIT Center for Ultracold Atoms in Cambridge, MA. The ICAP Co-Chairs were Robin Côté, Phillip Gould and Winthrop Smith of the Physics Department at the University of Connecticut. The University and particularly its Conference Services group provided excellent institutional and logistical support and facilities.

The conference was sponsored by IUPAP, NSF, NIST, ARO and the Department of Physics, the College of Liberal Arts and Sciences, and the Research Foundation of the University of Connecticut, as well as by several industrial companies. The organizers acknowledge with thanks the generous support of all these organizations and companies.

The Local Organizing Committee worked tirelessly to make the conference a success and the Program Committee did a great job in selecting the invited speakers. We also thank the members of the International Advisory Committee for their advice on conference organization, publicity and promotion of ICAP 2008.

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