

Current Trends and Future Directions in Relativistic Many Electron Theories

September 26th, 27th and 28th, 2016
Tokyo Institute of Technology
Ookayama, Tokyo Japan



Paul Dirac

$$(i\gamma^\mu \partial_\mu - m)\psi^c = 0$$

There have been remarkable advances in relativistic many-electron theories in the past few decades. In addition to the simultaneous treatment of relativistic and correlation effects, it is now possible to include certain basic QED and also parity and time-reversal violating effects in heavy atomic and molecular systems and perform reasonably accurate calculations of a wide range of properties. The motivation for this has come from spectacular improvements in the accuracy of the measurement of these properties using a variety of high precision spectroscopic techniques. The workshop will cover theoretical and computational approaches to a number of atomic and molecular problems where relativistic and correlation effects are important. Future directions in this field including some novel applications will also be discussed following presentations by experimentalists working on frontier areas of atomic, molecular and optical sciences.

Invited Speakers :

M. Abe (Tokyo Metropolitan University) M. Katouda (AICS, RIKEN) T. Nakajima (AICS, RIKEN) H. Nakatsuji QCRI, Kyoto) S. Saito (Tokyo Institute of Technology) J. Seino (Waseda University) R. Berger (Philips University, Marburg, Germany) V. Flambaum (University of NSW, Sydney, Australia) T. Fleig (Paul Sabatier University, Toulouse, France) R. Harrison (Stony Brook University, USA) Y. Ishikawa (Hawaii) S. Knecht (ETH, Zurich, Switzerland) W. Liu (Peking University, Beijing, China) A. V. Malyshev (St. Petersburg State University, Russia) A. N. Petrov (St. Petersburg State Univ, Russia) B. K. Sahoo (PRL, Ahmedabad, India) L. V. Skripnikov (St. Petersburg State Univ, Russia) A. V. Titov (St. Petersburg State Univ, Russia) K. Asahi (RIKEN) H. Katori (RIKEN and University of Tokyo) M. Kajita (NICT, Tokyo) M. Kozuma (Tokyo Institute of Technology) N. Sasao (Okayama University) M. Yoshimura (Okayama University)

* Talks will be held from 9:30 to 17:30 each day.

Organizers :

B. P. Das (Tokyo Institute of Technology) H. Sekino (Stony Brook University and Tokyo Institute of Technology)

Workshop Venue:

West Building 9 Second Floor Collaboration Room, Tokyo Institute of Technology, Ookayama

Time	26/09 - Monday	Time	27/09 - Tuesday	28/09 - Wednesday
9:30 - 10:00	Registration & Welcome	9:30 - 10:00	<i>Special Topic</i> R. Harrison	<i>On-going and Proposed Atomic Molecular and Optical Experiments</i> K. Asahi
10:00 - 10:45	<i>Foundations of Relativistic Many Electron Theories</i> W. Liu	10:00 - 10:30	<i>Fundamental Symmetries in Atoms</i> V. Flambaum	M. Kozuma
10:45 - 11:15	A. V. Malyshev	10:30 - 11:00	B. K. Sahoo	
11:15 - 11:30	Break	11:00 - 11:15	Break	Break
11:30 - 12:00	<i>Relativistic and Correlation Effects in Open Shell Atoms and Molecules</i> Y. Ishikawa	11:15 - 11:45	<i>Fundamental Symmetries in Molecules</i> R. Berger	N. Sasao
12:00 - 12:30	S. Knecht	11:45 - 12:15	T. Fleig	H. Katori
12:30 - 14:00	Lunch	12:15 - 12:45	A. Titov	M. Kajita
14:00 - 14:30	<i>Special Topics</i> H. Nakatsuji	12:45 - 14:15	Lunch	Lunch
14:30 - 15:00	S. Saito	14:15 - 14:45	M. Abe	Experiment - Theory Discussion until 16:30
15:00 - 15:30	M. Nakano	14:45 - 15:15	L. Skripnikov	
15:30 - 15:45	Break	15:15 - 15:45	A. N. Petrov	
15:45 - 16:15	<i>Computational Relativistic Molecular Theory</i> T. Nakajima	15:45 - 16:00	Break	
16:15 - 16:45	M. Katouda	16:00 - 17:30	Free Discussions	
16:45 - 17:30	Free Discussions			
		18:30 -	Workshop Dinner	