11th International Workshop on Fundamental Physics Using Atoms

Friday, March 1 (Symmetry and its violation)

09:00 – 10:00 Registration

10:00 – 10:05 Welcome

10:05 – 10:50 **Experiments on Parity and Time Reversal Violations in Atoms and Molecules**
Klaus Jungmann (University of Groningen, The Netherlands)

10:50 – 11:35 **TBA**
Minori Abe (Tokyo Metropolitan University, Japan)

11:35 – 12:00 Coffee Break

12:00 – 13:00 **Neutrino masses and flavor oscillations 1** (Tutorial Lecture)
Zhi-Zhong Xing (Beijing Institute for High Energy Physics, China)

13:00 – 14:30 Lunch Break

14:30 – 15:15 **Some new results of fundamental-symmetry tests and ultralight dark-matter searches**
Dmitry Budker (Helmholtz Institute, Johannes Gutenberg University, Mainz, Germany / U.C. Berkeley, US)

15:15 – 16:00 **Neutrino Oscillations – current status and future prospects –**
Atsuko K. Ichikawa (Kyoto University, Japan)

16:00 – 16:25 Tea Break

16:25 – 17:25 **Beyond Colliders: the Search for > 10TeV Particles using Cold Molecules 1** (Tutorial Lecture)
John Doyle (Harvard University, US)

17:25 – 17:50 **Magneto-optical trapping of radioactive francium atoms: toward search for electron electric dipole moment**
Ken-ichi Harada (Tohoku University, Japan)

17:50 – 18:15 **OIST Tour**

Saturday, March 2 (Cosmology and particles)

09:00 – 09:45 **Dark Matter and Structure Formation in the Universe**
Kentaro Nagamine (Osaka University, Japan)

09:45 – 10:10 **Recent Theoretical Developments on RENP**
Koji Tsumura (Kyoto University, Japan)

10:10 – 10:35 **Rate amplification of the multi-photon process toward neutrino mass spectroscopy**
Kei Imamura (Okayama University, Japan)

10:35 – 11:00 Coffee Break

11:00 – 11:45 **Recent developments and perspectives in physics of axions or axion-like-particles**
Kiwoon Choi (IBS, Korea)

11:45 – 12:10 **Macro-coherence in erbium-doped YLF**
Caterina Braggio (University of Padova and INFN, Italy)

12:10 – 12:35 **Particle detection by laser induced upconversion**
Federico Chiossi (University of Padova and INFN, Italy)

12:35 – 14:00 Lunch Break

14:00 – 15:00 **Neutrino masses and flavor oscillations 2** (Tutorial Lecture)
Zhi-Zhong Xing (Beijing Institute for High Energy Physics, China)

15:00 – 15:45 **X-ray pumping of the nuclear-clock isomer 229-Th**
Takahiko Masuda (RIIS, Okayama University)

15:45 – 16:10 Tea Break

16:10 – 17:10 **Beyond Colliders: the Search for > 10TeV Particles using Cold Molecules 2** (Tutorial Lecture)
John Doyle (Harvard University, US)

17:10 – 17:40 **Probing TeV Physics with ThO: Order of Magnitude Improved Limit on the Electron Electric Dipole Moment**
Cristian Panda (Harvard University, US)

18:00 – 20:30 **Poster Session with Conference Banquet**

Sunday, March 3 (Clocks and related topics)

09:00 – 09:45 **Optical lattice clocks toward 10^{-19}**
Hidetoshi Katori (RIKEN, Japan)

09:45 – 10:10 **^{129}Xe/^{131}Xe double-species spin maser for Xe-EDM search**
Tomoya Sato (RIKEN Nishina Center for Accelerator-Based Science, Japan)

10:10 – 10:35 **Extension of the single-ion optical clock to multi-ion systems**
Kazuhiro Hayasaka (NICT, Japan)

10:35 – 11:00 Coffee Break

11:00 – 12:00 **Interferometry with Bose-Einstein condensation on ground and in space 1** (Tutorial Lecture)
Ernst Rasel (University of Hannover, Germany)

12:00 – 12:45 **Dark Matter Direct Detection: the state-of-the-art**
Shingo Kazama (KMI, Nagoya University)

12:45 – Lunch and Excursion

Monday, March 4 (Atom-Molecule-Optics and Exotics)

09:00 – 09:45 **Phase-controlled atom-field interaction: from superradiance to superabsorption**
Kyungwon An (SNU, Korea)

09:45 – 10:10 **The Röntgen-term and surprising effects in basic in atom-light interaction**
Matthias Sonnleitner (University of Innsbruck, Austria)

10:10 – 10:35 **Experimental realization of a superfluid stripe phase in a spin-orbit coupled Bose-Einstein condensate via a lattice assisted coupling**
Vandna Gokhroo (Washington State University, US)

10:35 – 11:00 Coffee Break

11:00 – 12:00 **Interferometry with Bose-Einstein condensation on ground and in space 2** (Tutorial Lecture)
Ernst Rasel (University of Hannover, Germany)

12:00 – 12:25 **Observation of a dynamical phase transition in the collective Heisenberg model**
Ben Olsen (Yale-NUS College, Singapore)

12:25 – 13:00 **A new precision era in fundamental physics with cold antihydrogen atoms**
Makoto Fujiwara (TRIUMF, Canada)

13:00 – 14:30 Lunch Break

14:30 – 14:55 **Recent Progress towards Positronium Bose-Einstein Condensation**
Kyohei Yamada (The University of Tokyo, Japan)

14:55 – 15:40 **Cold Atoms and Fibres (tentative title)**
Sile Nic Chormaic (OIST Graduate University, Japan)

15:40 – 15:50 Closing Remarks