US-Japan Workshop on Quantum Control of Molecular Reaction Dynamics

Sunday, December 12

Reception: 18:00 - 20:00

Session I: Wave Packets (I) Chair: Martin Gruebele

20:00 Opening remarks, Yuichi Fujimura

20:05-20:50 Yuichi Fujimura (Tohoku University): “Quantum Control of Isomerization and Racemic Modification”

20:50-21:35 Philip Bucksbaum (University of Michigan): "Strong Field Ultrafast Quantum Control with Learning Algorithms"

Monday, December 13

Session II: Alignment Chair: Takashi Nakajima

8:30-9:15 Hirofumi Sakai (University of Tokyo): “Alignment of Neutral Molecules by a Strong Nonresonant Laser Field”

9:15-10:00 Masahiro Kawasaki (Kyoto University): “Control of Photofragment Velocity Anisotropy by Optical Alignment of CH₃I”

10:00-11:15 Coffee break

Session III: Wave Packets (II) and Dephasing Chair: Marcos Dantus

10:15-11:00 Martin Gruebele (University of Illinois at Urbana): "Nonexponential Dephasing and Control of Molecular Quantum Systems."

11:00-11:45 Stephen Leone (University of Colorado at Boulder): "Multiple State Phase Control in Wave Packet Dynamics"

11:45-12:30 Valeria Kleiman (Naval Research Laboratory): “Coherent Control of Molecular Excitations in Condensed Phase Using Optical Heterodyne Detection- Raman Induced Kerr Effect Spectroscopy”
Session IV: Wave Packets (III)  
Chair: Stephen Leone

19:00-19:45  Marcos Dantus (Michigan State University): “What Role Can Multipulse Four-wave Mixing Play in Coherent Control of Chemical Reactions?

19:45-20:30  Kenji Ohmori (Tohoku University): “Optical Collision to Control the Transition-Region Dynamics”

20:30-21:15  Carlos Stroud (University of Rochester): “Atomic Control via Classical Orbits”

21:15-23:00  Posters

Tuesday, December 14

Session V:  Intense Fields (I)  
Chair: Philip Bucksbaum

8:30-9:15  Hiroki Nakamura (Institute for Molecular Science): “New Way of Controlling Molecular Processes By Lasers”

9:15-10:00  Louis diMauro (Brookhaven National Laboratory): "Atomic and Molecular Dynamics in Intense, Long Wavelength Fields"

10:00-10:30  Coffee break

10:30-11:15  Akiyoshi Hishikawa (University of Tokyo): “Light-dressed States of Triatomic Molecules in Intense Laser Fields”

11:15-12:00  Hirohiko Kono (Tohoku University): “Correlation Dynamics of Electrons and Nuclei in Intense Laser Fields”

18:00-19:30  Dinner

Session VI:  
Chair: Masahiro Kawasaki

19:30-20:15  Robert Gordon (University of Illinois at Chicago): “What Have we from the Phase Lag in Coherent Control Experiments?”

20:15-21:00  Takashi Nakajima (Kyoto University): “Phase-sensitive Photoionization of Atoms and its Application”

21:00-21:45  Marlan Scully (Texas A&M University): “Freezing Light in Rare Earth Compounds”
Wednesday, December 15

Session VII: Condensed Matter (I) Chair: Takayoshi Kobayashi

8:30-9:15  Walter Pötz (University of Illinois at Chicago): “Optical and Structural Control of Quantum Interference in Semiconductors”

9:15-10:00 Kazuhiko Misawa (Tokyo University of Agriculture and Technology): “Wave Packet Engineering: From Molecules to Semiconductor Nanostructures”

10:00-10:15 Coffee break

Session VII: Condensed Matter (II) Chair: Valeria Kleiman

10:15-11:00 Nancy Makri (University of Illinois at Urbana): “Control of Dissipative Tunneling using Continuous-Wave Electromagnetic Fields”

11:00-11:45 Hrvoje Petek (Advanced Research Laboratory, Hitachi Ltd.):” Outlook for the Coherent Control of Electron and Nuclear Dynamics in Metals”

11:45-12:30 Takayoshi Kobayashi (University of Tokyo): “Sub-5 fs Real-Time Spectroscopy and its Application to Molecular Vibration Control”

12:30 -12:40 Concluding remarks, Robert Gordon