

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

Session V: Intense Fields (II) Chair: Carlos Stroud

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**