

KITP Conference: Opportunities and Challenges in Few-Body Physics: Unitarity and Beyond

(May 23-26, 2022)

Coordinators: Doerte Blume, Olivier Dulieu, Chris Greene, and Alejandro Kievsky

Monday, May 23, 2022

8:50am	Lars Bildsten (KITP)	Welcome[Video][CC]
9:00am	Ubirajara van Kolck (IPNOrsay & U Arizona)	Bosons and Multi-Component Fermions Near Unitarity[Slides][Video][CC]
9:45am	Lev Khaykovich (Bar-Ilan U)	Coherent wandering in Few-Body Land[Video][CC]
10:30am		Morning break
11:00am	Joe Carlson (LANL)	Structure and Response in Disparate Universal Regimes[Video][CC]
11:45am	Georg Bruun (Aarhus U)	Observing the emergence of a quantum phase transition -- from few- to many-body physics[Video][CC]
12:30pm		Lunch break
2:00pm	Reinhard Dorner (U Frankfurt)	Helium Dimers and Trimers: from imaging of structure to movies of ultrafast dynamics[Video][CC]
2:45pm	Mario Gattobigio (Côte d'Azur U)	Boson droplets close to the unitary limit[Slides][Video][CC]
3:30pm		Afternoon break
4:00pm	Andrea Bergschneider (U Bonn)	From strong correlations in ultracold fermi gases to polaron physics in atomically thin semiconductors[Slides][Video][CC]
4:45pm		Panel discussion
5:30pm		SHUTTLE TO BWSCI

Tuesday, May 24, 2022

9:00am	Eric Cornell (JILA)	A closer look at universality in Efimov physics[Slides][Video][CC]
9:45am	Nir Barnea (Hebrew U)	Short range correlations in nuclear physics[Slides][Video][CC]
10:30am		Morning break
11:00am	Kang-Kuen Ni (Harvard)	Precision test of statistical dynamics in molecular collisions and reactions[Slides][Video][CC]
11:45am	Dmitry Petrov (LPTMS Orsay)	Binding of heavy fermions by a single light atom in one dimension[Slides][Video][CC]
12:30pm		Lunch break
2:00pm	Emiko Hiyama (RIKEN)	Structure of 7H with $t+4n$ four-body cluster model[Slides][Video][CC]
2:45pm	Jose D'Incao (JILA, U Colorado)	Multichannel nature of few-body interactions in ultracold atomic systems and chemical reactions[Slides][Video][CC]
3:30pm		Afternoon break
4:00pm	Kimiko Sekiguchi (Tokyo Institute of Technology)	Experiments of few-nucleon scattering to explore three-nucleon forces[Slides][Video][CC]
4:45pm	Xiaoling Cui (IOP-CAS)	Universal clusters and crystalline correlation in mass-balanced fermioni mixtures[Video][CC]
5:30pm		Reception

6:00pm **Dinner**

8:00pm **Shuttle to BWSCI**

Wednesday, May 25, 2022

9:00am Dam Thanh Son (U of Chicago) [Universal Properties of Weakly Bound Two-Neutron Halo Nuclei](#)[\[Slides\]](#)[\[Video\]](#)[\[CC\]](#)

9:45am Lauriane Chomaz (Universitaet Heidelberg) [Quantum stabilization in dipolar quantum gases and novel many-body states](#)[\[Slides\]](#)[\[Video\]](#)[\[CC\]](#)

10:30am **Morning break**

11:00am Michal Tomza (U Warsaw) [Magnetic Feshbach resonances between a single ion and ultracold atoms](#)[\[Slides\]](#)[\[Video\]](#)[\[CC\]](#)

11:45am Sofia Quaglioni (LLNL) ['Classical' and quantum simulations of nuclear dynamics](#)[\[Slides\]](#)[\[Video\]](#)[\[CC\]](#)

12:30pm **Lunch break**

2:00pm Meera Parish (Monash) [Quantum behavior of a heavy impurity in a Bose gas](#)[\[Slides\]](#)[\[Video\]](#)[\[CC\]](#)

2:45pm Paul Gueye (MSU) [Probing open quantum systems with open questions using rare isotopes along the dripline at high energies](#)[\[Slides\]](#)[\[Video\]](#)[\[CC\]](#)

3:30pm **Afternoon break**

4:00pm Stefano Gandolfi (LANL) [Bosons and Fermions, from few to many](#)[\[Slides\]](#)[\[Video\]](#)

4:45pm Free discussion

5:30pm **Reception**

6:00pm **Dinner**

8:00pm **Shuttle to BWSCI**

Thursday, May 26, 2022

9:00am Francisco Miguel Marques (U de Caen) [Neutron-rich three-body systems](#)[\[Slides\]](#)[\[Video\]](#)[\[CC\]](#)

9:45am Johannes Denschlag (Ulm U) [Exploring propensity rules for three-body recombination in the ultracold regime](#)[\[Video\]](#)[\[CC\]](#)

10:30am **Morning break**

11:00am Sonia Bacca (U Mainz) [Nuclear structure effects in muonic atoms](#)[\[Video\]](#)[\[CC\]](#)

11:45am Kevin Fossez (Florida State U) [DMRG description of the island of inversion isotopes 28-33F](#)[\[Video\]](#)[\[CC\]](#)

12:30pm **Lunch break**

2:00pm Andrey Vilesov (USC) [Superfluid helium droplets](#)[\[Video\]](#)[\[CC\]](#)

2:45pm Eric Braaten (Ohio State) [Nonrelativistic Unparticles](#)[\[Slides\]](#)[\[Video\]](#)[\[CC\]](#)

3:30pm **Afternoon break**

4:00pm Michele Viviani (INFN) [The \$d\(d,p\)^3\text{H}\$ and \$d\(d,n\)^3\text{He}\$ processes at low energy](#)[\[Video\]](#)[\[CC\]](#)

4:45pm Concluding remarks

5:30pm **CONFERENCE END SHUTTLE TO BWSCI *Also available to SB Airport and SB Airbus, Goleta location.(See Registration Desk BEFORE THURSDAY to sign up.)**