



## Physical Sciences Seminar

# Ultracold three-body scattering: from quantum gases to chemical reactions

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The three-body scattering is crucial for ultracold trapped atomic gases as its inelastic process usually dominates the loss of atoms while its elastic process can stabilize the system against the collapse to form liquid quantum droplets when the interatomic interaction is attractive. The three-body scattering in these quantum gases provides also a unique opportunity to understand a variety of universalities in few-body physics, such as the Efimov effect, thanks to the high tunability of interatomic interactions. In ultracold atomic gases, the most relevant three-body inelastic scattering process is three free atoms colliding to form a molecule and releasing the binding energy into the translational movement of the molecule and third atom, the so-called three-body recombination (TBR). As an elementary chemical reaction process, understanding TBR is of fundamental importance for various fields of basic science such as astrophysics, atmospheric physics and physical chemistry. This talk will discuss our recent studies on ultracold three-body scattering problems using two sophisticated numerical techniques and the applications to Efimov resonances, properties of quantum gases and fundamental principles in chemical reactions.

**Friday, October 6, 2023 11:00am - 12:00pm**

Sunstone Bldg / Ground floor / Big Seminar Room B / 63 seats (I23.EG.102)



This invitation is valid as a ticket for the ISTA Shuttle from and to Heiligenstadt Station.

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<https://ista.ac.at/en/campus/how-to-get-here/> The ISTA Shuttle bus is marked ISTA Shuttle (#142) and has the Institute Logo printed on the side.