



## Mathematics and CS Seminar

# Geometric Fluid Dynamics

**Albert Chern (TU Berlin)**

**Host: Chris Wojtan**

In this talk I will present a modern geometric formulation of 19th century fluid dynamics. Beyond the topological insights to Helmholtz, Kelvin and Clebsch's vortex theory, I present a natural generalization to the Clebsch representation. In this new description, fluid states are encoded in Clebsch variables taking value in a prequantum bundle, a type of space introduced in geometric quantum mechanics. Through this formalism, we find a straightforward link between the Euler equations and the Schrödinger equation. In the talk I will also demonstrate that Schrödinger-based numerical solver is attractive in fluid simulations.

**Thursday, June 28, 2018 11:00am - 12:00pm**

IST Austria Campus Meeting room 2nd floor / Office Bldg West (I21.01.132)



This invitation is valid as a ticket for the IST Shuttle from and to Heiligenstadt Station. Please find a schedule of the IST Shuttle on our webpage: <https://ist.ac.at/en/campus/how-to-get-here/> The IST Shuttle bus is marked IST Shuttle (#142) and has the Institute Logo printed on the side.