

**ESI - SIMONS JUNIOR PROFESSOR  
SEMINAR  
Summer Term 2018**

The Erwin Schrödinger International Institute for Mathematics and Physics (ESI) of the University of Vienna is pleased to offer the following Seminar held by Simons Junior Professor Nils Carqueville during the Summer Term of 2018:

**Classical Physics and Symplectic Geometry**

**Nils Carqueville** (ESI, U Vienna)

Seminar (250142 SE): Wednesday, 11:00 - 12:30

Begin: March 7, 2018

Venue: ESI, Schrödinger Lecture Hall

**Abstract:** The seminar is open to theoretical physicists and mathematicians alike. The goal is to develop the Hamiltonian formulation of classical mechanics in the modern language of symplectic geometry. We will start by concisely reviewing the canonical formalism typically covered in a first course in theoretical physics, including the variational principle, Noether's and Liouville's theorem, and a few illustrative examples. (This will serve as a reminder for physicists and will suffice to introduce mathematicians to the subject.) Then the basics of symplectic geometry as well as the necessary differential geometric background will be introduced. (This part will be more natural for mathematicians and introductory for physicists.) In the final part of the seminar, the familiar formalism of classical mechanics will be reformulated in symplectic language, and we will offer an outlook on quantisation.

Christoph Dellago  
Director