

ESI SENIOR RESEARCH FELLOW LECTURE COURSE Summer Term 2024

The Erwin Schrödinger International Institute for Mathematics and Physics (ESI) of the University of Vienna offers the following Lecture Course held by a Senior Research Fellow in residence during the Summer Term 2024:

A guided tour through cirrus clouds

Martina Krämer (U of Mainz)

Lecture Course (260088 VU)

Time: 11:00 - 12:30 h

Start: Wednesday, March 20, 2024

Further dates: Friday, March 22, Wednesday, April 10, Friday, May 3, Wednesday, May 8, Wednesday, May 15, Wednesday, May 22, 2024

Venue: Erwin Schrödinger Institute, Schrödinger Lecture Hall

Abstract:

Cirrus clouds, which consist entirely of ice crystals and are found between 5 to 19 km in the atmosphere, represent one of the largest uncertainties in predicting the Earth's climate. Cirrus are still not fully understood due to the complexity of the processes that control their formation and evolution. This lecture aims to first provide an overview of the role of cirrus clouds in the climate system and then to present a guide to cirrus microphysics. To this end, the theory of ice formation and development as well as airborne instrumentation used to measure cirrus clouds will be introduced. The microphysical properties of cirrus clouds are then presented and discussed through the synergy of extensive model simulations, covering the broad range of atmospheric conditions, and comprehensive aircraft observations from the Arctic to the tropics.

Contents and method of the course: Cirrus & climate system; Cirrus measurements; Cirrus life cycles from simulations; Cirrus properties, climatologies and global views

Aim of the course: The aim of this course is to introduce and explain cirrus clouds which appear in an environment in which only ice can exist. An impression of the global distribution of these clouds and their properties will be provided and the feedback to the Earth's climate will be discussed.

Course website: <https://www.esi.ac.at/events/e535/>

Christoph Dellago
Director