OIST OKINAWA INSTITUTE OF SCIENCE AND TECHNOLOGY
沖縄科学技術大学院大学

THEORETICAL SCIENCES VISITING PROGRAM

TSVP TALK

How Much of Plasma Physics Can a Mathematician Understand?

2024 THU. **Sep.19**

15:00–16:00

HYBRID L5D23, ZOOM

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The kinetic theory of plasma is a well-developed theory in physics which fuels our understanding of nature, but also drives technological innovation such as fusion reactors. Due to the long-range interaction of charged particles (decays like $1/|x|$), the dynamics of such systems is particularly rich, but also difficult to capture in mathematically precise theorems. In this talk we give an overview of how far mathematicians have come in this area, what the current challenges are, and what one can hope to be able to do in the future.

Cardiff University

Rapheal Winter

Raphael Winter is an assistant professor in Mathematical Analysis at Cardiff University. He mainly works on Partial Differential Equations describing the kinetic theory of gases and plasmas, as well as their derivation from interacting particle systems. Recent works include the stopping power law for ions, collisional relaxation of plasma and the regularity of the Landau-Coulomb equation.

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