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OKINAWA INSTITUTE OF SCIENCE AND TECHNOLOGY

沖縄科学技術大学院大学

VISITING PROGRAM

TSVP TALK

Degenerate PDEs and Their Underlying Sub-Riemannian Structure

In the talk, I will show how PDEs, which may appear highly degenerate at first glance, become far more regular when interpreted within a different underlying geometry. In particular, I will focus on PDEs related to the so-called Hörmander regularity theory, which is connected to sub-Riemannian geometries such as the Heisenberg group and Carnot groups. The aim is to provide an overview of this theory that is accessible to a broad scientific audience; therefore, I will mostly concentrate on simple yet significant examples.

2026
Thur. **JULY 02**

15:00–16:00

HYBRID L5D23, ZOOM



For zoom and other details scan QR code or visit oist.jp/visiting-program



Cardiff University

Federica Dragoni

Federica Dragoni studied Mathematics at the University of Florence and obtained her PhD in Mathematics from the Scuola Normale Superiore di Pisa. She subsequently held research and academic positions at the University of Pittsburgh (USA), the Max Planck Institute in Leipzig (Germany), the University of Padova (Italy), and Imperial College London (UK). In 2011, she joined Cardiff University, where she has been a Full Professor of Mathematics since 2021.

Her research focuses on degenerate nonlinear partial differential equations associated with Hörmander-type conditions. More broadly, her work lies at the interface between mathematical analysis and geometry. These PDEs are typically linked to underlying geometric structures in sub-Riemannian settings, such as the Heisenberg group, Carnot groups, and more general sub-Riemannian manifolds. Their study requires tools from partial differential equations, control theory, metric geometry, and geometric analysis.

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CONTACT

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