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

THEORETICAL SCIENCES VISITING PROGRAM

TSVP TALK

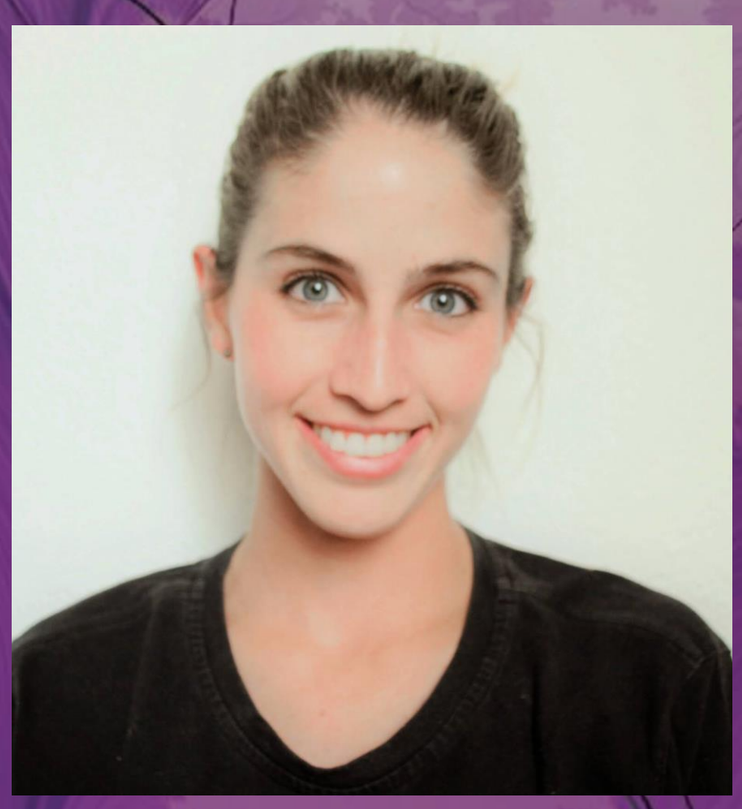
Variational Methods and Metric Measure Spaces

2024
TUE. **Sep. 24**

15:00–16:00

HYBRID L5D23, ZOOM

For zoom and other details scan QR code or visit groups.oist.jp/tsvp



Variational methods appeared as an answer to the problem of finding minima of functionals. It tells us the conditions for the existence of a minimum, as well as those that allow its calculation and computation. Variational calculus is intimately linked with the theory of partial differential equations since the conditions for the existence of a solution to the minimization problem normally depend on the fact that said solution satisfies a certain differential equation. My research revolves around extending classical variational calculus results to metric measure spaces, focusing on nonlinear parabolic and elliptic partial differential equations (PDEs). During the past two decades, there has been a desire to create a theory to unify the assumptions and methods employed in various specific spaces, such as weighted Euclidean spaces, Riemannian manifolds, Heisenberg groups, graphs, etc.
Analysis on metric spaces is nowadays an active and independent field, bringing together researchers from different parts of the mathematical spectrum. It has applications to disciplines as diverse as geometric group theory, nonlinear PDEs, and even theoretical computer science. This can offer us a better understanding of the phenomena and also lead to new results, even in the classical Euclidean case.

University of Calgary

Cintia Pacchiano

Cintia Pacchiano has a PIMS Post-doctoral Fellowship at the University of Calgary. Her research area is mathematical analysis, more precisely, theoretical aspects of nonlinear partial differential equations (PDEs). Her primary focus is on regularity theory of elliptic and parabolic PDEs, in connection with the calculus of variation and potential theory. Most recently, analysis on metric measure spaces forms a central aspect of her work, as it provides an integrating structure for ideas and questions from many different areas of mathematics.

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