MATH-IMS Joint Colloquium Series
The Chinese University of Hong Kong

This MATH-IMS Joint Colloquium Series in pure mathematics is organized by the Department of Mathematics and the Institute of Mathematical Sciences (IMS) at the Chinese University of Hong Kong. The series focus on all areas of pure mathematics together with theoretical developments and applications.

Date: March 11, 2021 (Thursday)
Time: 4:00pm – 5:00pm (Hong Kong Time)
Zoom Link: https://cuhk.zoom.us/j/98846779826

Systolic questions in metric and symplectic geometry
Speaker: Professor Alberto Abbondandolo
Ruhr Universität Bochum

Abstract: The prototypical question in metric systolic geometry is to bound the length of a shortest closed geodesic on a closed Riemannian manifold by the volume of the manifold. This question has been extensively studied for non simply connected manifolds, but in the recent years there has been some progress also for simply connected manifolds, on which closed geodesics cannot be found simply by minimizing the length. This progress involves extending systolic questions to Reeb flows, a class of dynamical systems generalising geodesic flows. On the one hand, this extension and the use of symplectic techniques provide some answers to classical questions within metric systolic geometry. On the other hand, new questions arise from the more general setting and relate seemingly distant fields such as the study of rigidity properties of symplectomorphisms and the integral geometry of convex bodies. I will give a non-technical panoramic view of some of these recent developments.

Bio: Prof. Abbondandolo obtained his Ph.D. degree in 1999 from Scuola Normale Superiore, Pisa under the direction of Prof. V. Benci. He held positions at Scuola Normale Superiore, the Courant Institute at NYU, and University of Pisa before moving to Ruhr-Universität Bochum in 2012 as a professor, and has been the director of the Floer Centre of Geometry at the University of Bochum since 2013. He was awarded the International Award "Vincenzo Caglioti" for Mathematics in 2005, and the Humboldt Research Fellowship for Experienced Researchers in 2008. He is the editor of the Virtual Series on Symplectic Geometry and the journal Rivista UMI. From 2015 to 2019, he was the chief editor of Journal of Fixed Point Theory and Applications.