

## 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:** February 18, 2021 (Thursday)

**Time:** 4pm – 5pm (Hong Kong Time)

**Zoom Link:** <https://cuhk.zoom.us/j/98846779826>

### Reeb dynamics in dimension 3 and broken book decompositions

*Speaker: Professor Vincent Colin  
University of Nantes*

**Abstract:** The study of the dynamics of vector fields in dimension 3 was at center of Poincaré's pioneering work on the 3-body problem. Vector fields arising from mechanics often have the extra property of preserving a contact structure and fall in the family of Reeb vector fields. I will describe how to extend the notion of a Poincaré's surface of section to the more general notion of a broken book decomposition and derive general dynamical properties. Amongst those, a nondegenerate Reeb vector field has either 2 or infinitely many periodic orbits. This is joint work with Patrick Dehornoy and Ana Rechtman.

**Bio:** Prof. Vincent Colin received his PhD degree in 1998 from ÉNS-Lyon under the direction of Prof. Emmanuel Giroux, and obtained Habilitation in 2002. He is a receiver of the Bronze Medal of CNRS in 2004 and has been a member of l'Institut Universitaire de France since 2006. Since 2008 he has been a professor at l'université de Nantes.