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

This 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 focuses on all areas of pure mathematics together with theoretical developments and applications.

Date: January 21, 2022 (Friday)
Time: 4:00-5:00PM (Hong Kong Time)
Zoom Link: https://cuhk.zoom.us/j/98846779826

Singular K3 surfaces and complex reflection groups

Speaker: Professor Cédric Bonnafé
Université de Montpellier

Abstract: Joint work with A. Sarti. Singular K3 surfaces are the K3 surfaces with maximal Picard number, namely 20. I will explain how to construct families of K3 surfaces with big Picard number using invariants of finite complex reflection groups of rank 4, most family containing some singular ones. This extends earlier work of Barth-Sarti for two reasons: firstly, we obtain much more examples by considering all reflection groups of rank 4 and, secondly, our proofs involve more theory of complex reflection groups and avoids as much as possible (but not completely) a case-by-case analysis.

Bio: Prof. Bonnafé received his Ph.D. in 1996 at Université Paris Diderot - Paris 7, under the supervision of Prof. Jean Michel. He is currently a Senior Researcher at the French National Centre for Scientific Research (CNRS) and the Head of the Geometry, Topology, Algebra team. Prof. Bonnafé is an expert in representation theory of finite reductive groups and related objects (such as Hecke algebras or rational Cherednik algebras). He has done important work on the Kazhdan-Lusztig theory of cells and more recently on the Calogero-Moser spaces and double affine Hecke algebras. Prof. Bonnafé is also the author of over 50 publications and two influential textbooks in representation theory.