
BERN-FRIBOURG GRADUATE SEMINAR

a seminar for Master and PhD students

Thursday 16th May, 2024: 17:15 - 18:00

Room 2.52, Perolles 08, Fribourg

BAO TRAN

University of Bern

Surfaces with Canonical Hyperplanes sections

Abstract

In modern Algebraic and Complex Geometry, Calabi-Yau manifolds play central role in the studying of the Mirror Symmetry and Superstring theory. Two dimensional projective Calabi-Yau manifolds are called K3 surfaces, which also have their own place in the history of mathematics. An interesting property, which we will call it "having Canonical hyperplane sections" (having CHS) property, of these surfaces is that the intersections between hyperplanes and them can give us Riemann surfaces with genus larger than or equal to two. In 1983, D.H.J. Epema found that the class of these surfaces is actually much bigger than the class of K3 surfaces, and most of them have bad singularities. Various of them have close relations to "log Calabi-Yau surfaces", which are also the main objects in the Gross-Sibert approach to Mirror Symmetry. In this talk, I will introduce the projective surfaces having CHS and also give a classification for all of them. This is the first part of my master thesis that has been done at Université de Côte d'Azur.