

Title: The algebraic fundamental group of surfaces with low invariants

Abstract:

This talk will focus on results (recent and less recent) about the algebraic fundamental group of surfaces of general type with “small” K^2 .

If a complex projective surface of general type has a finite (algebraic) fundamental group then it is regular. Xiao Gang proved in 1985 that for regular minimal surfaces of general type S satisfying $K^2 \leq 3\chi - 1$ either $\pi_1(S)$ is finite or then S has a base point free pencil of hyperelliptic genus 3 curves with at least 4 double fibres.

It turns out that the order of the finite fundamental groups that can occur in this range of invariants is very limited.

This seminar aims to explain these limitations. In particular some recent results (obtained in collaboration with R. Pardini and C. Ciliberto) will be discussed.