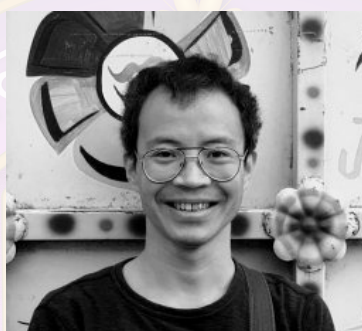# Department of Mathematics
University of Delhi, South Campus

Seminar

You are cordially invited to a lecture by

Vu Trung Hieu
RIKEN Center for Advanced Intelligence Project, Japan

Title
Deciding Nonnegativity of Generic Polynomials

Date: Monday, 16 February
Time: 3:00 PM
Venue: Room No. 317, Arts Faculty, South Campus, University of Delhi

Abstract. The nonnegativity of multivariate real polynomials is a central problem in polynomial optimization and real algebraic geometry. In this talk, we study the problem of deciding whether a given real polynomial f is nonnegative. Our approach is based on the critical value polynomial φ_f, whose roots are the complex critical values of f.

Under a genericity assumption, deciding nonnegativity reduces to checking whether φ_f has only nonnegative real roots. This reduction enables a decision procedure via Sturm's theorem. We then present a symbolic algorithm for deciding nonnegativity and provide a bit-complexity analysis in the case where f has rational coefficients.

The talk is based on joint work with Nguyen Hong Duc and Akiko Takeda.

For further details, contact:
Prof. Sachi Srivastava   ssrivastava@maths.du.ac.in   +91-7838266611