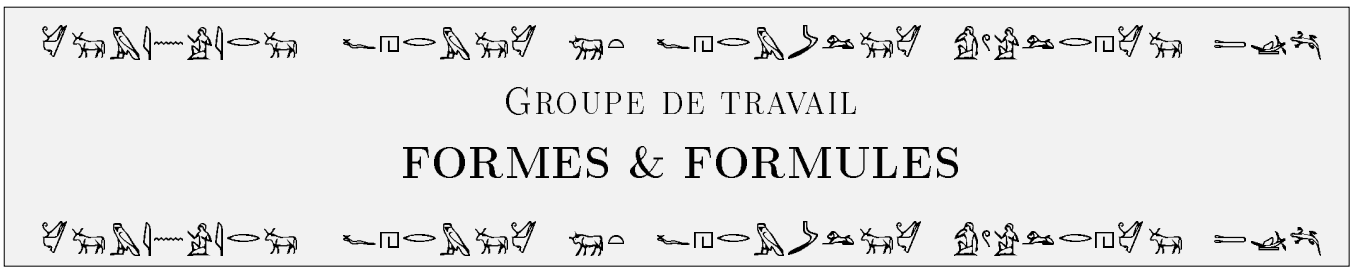

Jeudi 11 Juillet à 14 Heures :

Sudhir Ghorpade

Indian Institute of Technology (Bombaï)

« Combinatorics of Young tableaux, Determinantal varieties and Computation of Hilbert functions. »

ABSTRACT: Initially, we will briefly review the work of Doubilet-Rota-Stein on the Straightening Law for Young bitableaux, and an enumerative proof of this law, due to Abhyankar, which also gives the Hilbert function of a large class of determinantal varieties. We will outline a short proof of Abhyankar's formula for this Hilbert function using nonintersecting lattice paths. We will also describe the Grobner bases of these determinantal ideals and the associated simplicial complexes, which can be used to prove the Cohen-Macaulayness of the corresponding residue class rings. Lastly, we will discuss some generalizations to higher dimensions where the classical notion of multidimensional determinant is used.