Workshop on Representation Theory, Geometry & Combinatorics

Organizer: Mark Haiman

Monday June 2–Friday June 6, 9:30–5:00pm, Bechtel 120ABC

Robin Langer, Melbourne
Symmetric functions of Littlewood-Richardson type

The ring of symmetric functions Λ, with natural basis given by the Schur functions, arise in many different areas of mathematics. For example, as the cohomology ring of the grassmanian, and as the representation ring of the symmetric group. One may define a coproduct on Λ by the plethystic addition on alphabets. In this way the ring of symmetric functions becomes a Hopf algebra. The Littlewood–Richardson numbers may be viewed as the structure constants for the co-product in the Schur basis. In this talk we show that by using a generalization of the classical umbral calculus of Gian-Carlo Rota, one may deform the basis of Schur functions to find many other bases for which the Littlewood–Richardson numbers as coproduct structure constants.