Title: *Fully non-linear Diophantine approximation for a single linear form*

Abstract:

Suppose $L$ is a linear form in two variables with real coefficients. In classical Diophantine approximation, one would ask that the value of such a form when evaluated at an appropriate integer point is close to an integer. The non-linearity introduced in this setup is on the coefficients, and we will suppose that the coordinates of the integer vectors in the domain of the linear form $L$ are perfect powers with a prescribed exponent for each variable. Furthermore, we will suppose that the image is required to be close to a perfect power, again with a prescribed power. The problem is motivated from the study of certain partial differential equations with periodic boundary conditions. Under some conditions on the arithmetic and relative magnitude of the exponents, we obtain a full Khintchine-Groshev theorem for such linear forms. This is joint work with Mumtaz Hussain and Stephen Harrap.