Speaker: Mona Azadkia (London School of Economics)

Date: 13/11/2026 at 13:15 in 4 West 1.7 (Wolfson Lecture Theatre)

Title: A new measure of dependence

Abstract:
We introduce a novel measure of dependence that captures the extent to which a random variable Y is determined by a random vector X. The measure equals zero precisely when Y and X are independent, and it attains one exactly when Y is almost surely a measurable function of X. We further extend this framework to define a measure of conditional dependence between Y and X given Z. We propose a simple and interpretable estimator with computational complexity comparable to classical correlation coefficients, including those of Pearson, Spearman, and Chatterjee. Leveraging this dependence measure, we develop a tuning-free, model-agnostic variable selection procedure and establish its consistency under appropriate sparsity conditions.