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Some Global Results on Nonlinear Brascamp-Lieb Inequalities

The Brascamp-Lieb inequalities are a powerful generalisation of many classical multilinear inequalities, such as Hölder's inequality, Young's convolution inequality, and the Loomis-Whitney inequality, as well as a fundamental manifestation of a notion of transversality that commonly arises in multilinear harmonic analysis. In this talk, I will introduce the linear and nonlinear Brascamp-Lieb inequalities, explain their relation to topics such as multilinear Keakeya and Fourier restriction, and discuss some of the results I have proved over the course of my PhD, which aim to address the question of nonlinear Brascamp-Lieb inequalities over unbounded domains.