UNIVERSITY OF HOUSTON DEPARTMENT OF MATHEMATICS

Analysis Seminar

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The graph isomorphism game for quantum graphs

1:00 pm in 646 PGH September 20, 2019

Abstract

Non-local games give us a way of observing quantum behaviour through the observation of only classical data. The graph isomorphism game is one such non-local game played by Alice and Bob which involves two graphs. A winning strategy for the game is called quantum if it utilizes some shared resource of quantum entanglement between the players. We say two graphs are quantum isomorphic if there is a winning quantum strategy for the graph isomorphism game. We show that if a pair of (quantum) graphs X and Y are algebraically quantum isomorphic then the quantum automorphism groups G_X and G_Y are monoidally equivalent. We also show a converse of this statement. This is based on joint work with M. Brannan, A. Chirvasitu, S. Harris, V. Paulsen, X. Su, and M. Wasilewski.