QUANTUM ISOMORPHISMS OF GRAPHS AND MONOIDAL EQUIVALENCE

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Abstract: I will talk about a graph isomorphism game and how different frameworks of quantum strategies lead to several notions of a quantum isomorphism between graphs; these will all be encompassed by a certain*-algebra associated to the game. Next I will introduce the quantum automorphism group of a graph and define an equivalence between these objects called the monoidal equivalence. Then I will present a connection between the *-algebra associated to the game and a *-algebra associated to monoidal equivalence, called the linking algebra, and how it allows to prove that a very weak form of quantum isomorphism automatically implies a much stronger version thereof. If time permits, I plan to discuss some open problems. This is joint work with Brannan, Chirvasitu, Eifler, Harris, Paulsen, and Su.