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## The Semimetal-Mott Insulator Quantum Phase Transition of the Hubbard Model

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The Hubbard model is an important tool to understand the electrical properties of various materials. More specifically, on the honeycomb lattice it features a quantum phase transition from a semimetal to a Mott insulating state which falls into the Gross-Neveu universality class. In this talk I am going to explain how we confirmed said quantum phase transition by taking advantage of recent improvements in our Hybrid Monte Carlo algorithm. These improvements allowed us to simulate unprecedentedly large lattices and extract critical quantities with very high precision.

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