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**A continuous Mott transition between a metal and a quantum spin liquid** RYAN V. MISHMASH, Caltech and UCSB, IVAN GONZALEZ, CESGA, ROGER G. MELKO, Waterloo and Perimeter Institute, OLEXEI I. MOTRUNICH, Caltech, MATTHEW P. A. FISHER, UCSB — More than half a century after first being proposed by Sir Nevill Mott, the deceptively simple question of whether the interaction-driven electronic metal-insulator transition may be continuous remains enigmatic. Recent experiments on two-dimensional materials suggest that when the insulator is a quantum spin liquid, lack of magnetic long-range order on the insulating side may cause the transition to be continuous, or only very weakly first order. Motivated by this, we study a half-filled extended Hubbard model on a triangular lattice strip geometry. We argue, through use of large-scale numerical simulations and analytical bosonization, that this model harbors a continuous (Kosterlitz-Thouless-like) quantum phase transition between a metal and a gapless spin liquid characterized by a spinon Fermi sea, i.e., a "spin Bose metal". These results may provide a rare insight into the development of Mott criticality in strongly interacting two-dimensional materials and elucidate a mechanism by which spin-liquid phases are stabilized in the vicinity of such transitions.

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