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Strange metals from quantum geometric fluctuations of interfaces JIAN-HUANG SHE, Cornell University, ALAN BISHOP, ALEXANDER BALATSKY, Los Alamos National Lab — The emerging picture of strongly correlated electron systems is that they possess a multiplicity of nearly degenerate ground states. A general theoretical framework for such systems is lacking. Here we explore a new approach based on the observation that different ground states can coexist and fluctuate in real space. Specifying to systems near the Mott metal-insulator transition, we propose a real space picture as itinerant electrons functioning in the fluctuating geometries bounded by interfaces between metallic and insulating regions. The interface fluctuations give rise to non-Fermi liquid behavior for the itinerant electrons, and furthermore mediate Cooper pairing.

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