Universal theory of strange metals from spatially random interactions

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We consider two-dimensional metals of fermions coupled to quantum critical scalars, the latter representing order parameters or emergent gauge fields. We show that at low temperatures (T), such metals generically exhibit strange metal behavior with a T-linear resistivity arising from spatially random fluctuations in the fermion-scalar Yukawa couplings about a non-zero spatial average. We also find a $T\ ln(1/T)$ specific heat, and a rationale for the Planckian bound on the transport scattering time. These results are obtained in a large N expansion of an ensemble of critical metals.