**The Janus-face of the localized carrier in cuprates:**
**Generating the pseudogap and high-temperature superconductivity**

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The cuprate high-temperature superconductors are among the most intensively studied materials, yet two pivotal questions remain unanswered: what is the nature of the carriers that become superconducting, and what is the superconducting 'glue', i.e., what mechanism causes electrons to pair and form a superconducting condensate. The answers to these questions are obscured by the complexity of the phase diagram, such as the proximity of the insulating antiferromagnetic phase, the strong electronic interactions, the appearance of a pseudogap, compound specific features and well-known spatial inhomogeneity.

In a recent development, Fermi-liquid (FL) properties have been revealed across the cuprate phase diagram: (i) the sheet resistance follows a FL temperature-doping dependence in the pseudogap regime of the hole-doped cuprates [1,2] and in the AF phase of the electron-doped cuprates [3]; (ii) the magnetoresistivity obeys Kohler scaling in the pseudogap regime of the hole-doped materials, with a FL scattering rate [4]; (iii) the optical scattering rate exhibits temperature-frequency scaling expected for a FL system [5]; (iv) the cotangent of the Hall angle is quadratic in temperature and universal (nearly independent of doping, compound, and charge-carrier type [2,3]), which quantitatively connects the well-accepted Fermi-liquid properties at high doping with those recently established deep in the pseudogap phase. Consequently, the mysterious approximate $T$-linear resistive behavior in the strange-metal phase can be simply understood to be the result of a Fermi-liquid $T^2$ scattering rate combined with a $T$-linear increase in carrier density.

These novel experimental facts lead us to propose: (i) that the charge carriers which pair to give high-temperature superconductivity follow Fermi-liquid behavior; (ii) that the pseudogap phenomenon corresponds to a gradual (Mott-like) (de)localization of exactly one hole carrier per planar $CuO_2$ unit; (iii) and that the pairing glue is associated with the local bosonic degrees of freedom of the localized carrier.

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