

Why T_c is high: quantum critical BCS.

[Observing the origin of superconductivity in quantum critical metals](#)

We discovered a first example of an experiment that sheds light on whether the high T_c superconductors are quantum supreme or not quite some time ago. Holographic superconductivity may be viewed as a generalization of BCS in the sense that the marginal scaling dimension of the pair operator of the Fermi gas becomes anomalous in the strange metal.

According to holography it has an appetite to turn relevant with the effect that the gap equation becomes an algebraic affair where even a small attractive interaction can give rise to a high T_c . It is often forgotten that the T_c is determined by the competition between the metal and the superconductor and the general message of holography is that the strange metal may be much more unstable than the Fermi-liquid as the secret behind a high T_c . In principle the pair susceptibility of the metal can be measured but this requires a tunneling device that is very difficult to fabricate.

[See also](#) for cluster DMFT evidence for a relevant scaling dimension of the pair operator for the Hubbard model.

