

Abstract Submitted  
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**Electronic screening in graphite**<sup>1</sup> JAMES REED, YOUNG IL JOE, PETER ABBAMONTE, University of Illinois at Urbana-Champaign — Nonlocal screening in highly-oriented pyrolytic graphite was investigated with inelastic x-ray scattering. Measurements were performed over a sufficiently broad range of momentum and energy to permit complete inversion of the loss function,  $-Im[1/\epsilon(k, \omega)]$ , allowing real-time, microscopic imaging of the induced electron density around a charged impurity. In addition, we found evidence for a sign change in the zero-frequency dielectric function,  $\epsilon(k, 0)$ , over a sizeable range of momentum. This “antiscreening” should cause the Coulomb interaction to be attractive, perhaps assisting superconductivity in this system.

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Peter Abbamonte  
University of Illinois at Urbana-Champaign

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