

Abstract Submitted
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Optical study of the hidden order state in URu₂Si₂ THOMAS TIMUSK, JESSE HLL, McMaster Univ, TOOMAS RÕÕM, URMAS NAGEL, TAANIEL ULEKSIN, Natl. Inst. of Chem. Phys. & Biophys., Tallinn, Estonia, RICARDO LOBO, ESPCI-Paris Tech, Paris, France, CHRIS HOMES, Brookhaven National Laboratory, Upton, NY — We discuss recent optical experiments [1,2] both in the normal state above the hidden order transition at 17.5 K in URu₂Si₂ and in the hidden order state itself. In the normal state the focus is on the development of coherence as shown by the Drude peak and the pseudo-hybridization gap that develops at 12 meV. In the hidden order state a gap opens up with $2\Delta = 6$ meV but its temperature evolution is not that of a mean field transition. To gain insight into the nature of the transitions we discuss the transfer of spectral weight between the various features in the optical conductivity spectrum as the temperature is changed.

[1] U. Nagel *et al.* PNAS **109** 19161 (2012).

[2] J. Hall *t al.* Phys. Rev. B **86**, 035132 (2012).

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