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**Cryogenic Near-Field Microscopy in Correlated Electronic Systems** ADRIAN GOZAR, Brookhaven National Laboratory — We present results on the performance of a scattering-based scanning near-field optical microscope. The instrument was designed for measuring nano-scale complex dielectric properties of materials in a variable-temperature environment. The setup has a 20 - 30 nm spatial resolution with sample temperatures in the 10 - 300 K range. Spectral operation is in the infrared to visible and 0.1 - 1 THz regions. We illustrate these capabilities with results in graphene and ultra-thin sub-surface oxide films.

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