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Temperature Dependence of the Dielectric Function of Ni near the Curie Temperature[1] STEFAN ZOLLNER, DENNIS TRUJILLO, LAURA PINEDA, LINA ABDALLAH, New Mexico State Univ — Ornstein *et al.* (Physica V, 1938) observed a discontinuity in the normal-incidence reflectance of Ni at the Curie temperature. A similar phenomological observation of a temperature related slope change in resistivity versus temperature in Ni was made by Litschel *et al.* (J. Phys. Chem. Solids, 1985). To follow up on these observations we carried out measurement of the dielectric function ϵ as a function of temperature for a magnetized thin film Ni sample (1000 Å Ni on SiO_2) and bulk polycrystalline Ni via ellipsometric measurement at a fixed photon energy (1.9 eV). For a magnetized sample, we observe a discontinuity in the dielectric function versus temperature just below the Curie temperature for both thin film and bulk polycrystalline Ni. In an unmagnetized Ni sample (obtained by heating above the Curie temperature), this continuity is not present. We believe that this observation is due to a change in the on-diagonal dielectric tensor elements for Ni in the magnetized samples, not due to the off-diagonal elements related to the Kerr effect.

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