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Electrical Conductivity of Polyaniline Thin Films ZAHRA NASROLLAHI, CATALIN MARTIN, DAVID B. TANNER, Physics Department, University of Florida, YOUNG-GI KIM, PATRICK KINLEN, Crosslink, 950 Bolger Ct., Fenton, MO 63026 — We use infrared spectroscopy measurements to estimate the electrical conductivity of highly conductive polyaniline at different temperatures. The reflectance data were fitted to a model that includes a number of contributions to the electrical conductivity, such as Drude response of the free carriers, vibrational contributions, and interband transitions. We use classical models for these contributions and an exact model for the optical properties of thin films on the thick substrates. The results give the effective charge-carrier density and the transport lifetime of these charge carriers. The far infrared measurements will be compared to dc transport measurements.

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