A Generalized Model for Dielectric Relaxation and Resonance
JAMES BAKER-JARVIS, MICHAEL JANEZIC, PAVEL KABOS, NIST — In this paper we develop a very general model from our previously developed statistical mechanical theory that describes relaxation, resonance, with temperature dependence. We also analyze the model in terms of entropy and a generalized Lyddane-Sachs-Teller relationship. The model is based on a correlation function approach and complex relaxation time from our previously developed theory. The commonly used Cole-Cole, Cole-Davidson and other models are related to this model as a special case. Using a fluctuation-dissipation theorem, we develop an algorithm for extraction of the loss properties of nanowires.

James Baker-Jarvis
NIST