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Yury Grabovsky and **Narek Hovsepyan*** (hovnarek@yahoo.com). *On feasibility of extrapolation of complex electromagnetic permittivity functions.*

As a function of frequency, the complex electromagnetic permittivity has analytic extension into the upper half-plane. It has further physical properties such as positive imaginary part and reflection symmetry about the imaginary axis. Such a function can be measured in a band of frequencies and one would like to extrapolate to a wider band of frequencies, using its analyticity. How reliable such extrapolation procedures can possibly be? Given two analytic functions, representing extrapolants of the same experimental data, we give a sharp bound on the worst case error at an extrapolation point outside of the experimentally accessible frequency band. We show that this bound exhibits a power law precision deterioration as one moves further away from the frequency band containing measurement data. This quantifies the uncertainty of any extrapolation procedure. (Received August 16, 2020)