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

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? We reformulate this question in terms of stability of analytic continuation of Hardy functions. The latter is then reduced to a solution of a linear integral equation of Fredholm type, which can be solved numerically, leading to a quantification of uncertainty of any extrapolation procedure. (Received February 20, 2020)