

Stochastic Green Functions in dissipative and non dissipative closed chaotic devices

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In this communication we will introduce a new set of Green Functions for closed cavities. Closed cavities are, in general, chaotic, which implies that tiny changes in the configuration (among others, wave frequency, small geometry perturbations, permittivity or permeability alterations due to temperature or pressure fluctuations) cause large electromagnetic field fluctuations. Stochastic models are the most suitable way for addressing this chaotic behaviour. We demonstrate that the Green functions in chaotic environments can be modelled by a random variable (Stochastic Green Function) that can be obtained in closed forms for non dissipative and low dissipative cavities. This closed form corresponds to alpha-stable distributions whose parameters depends mainly of frequency and distance (between source and observation) and in a lesser extent of volume of the cavity and are independent of the shape of the cavity.

ACK: This communication is part of the I+D+I Projects Refs. PID2020-116627RB-C21, supported by MCIN/AEI/10.13039/501100011033, IB18073 and GR21072 both supported by the Extremadura Regional Government and FEDER.