

# Small volume asymptotics for Maxwell's equations

Yves Capdeboscq

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In this talk, we shall discuss first order asymptotic expansion (in terms of volume fraction) of solutions of the time-harmonic Maxwell's system of equations in presence of inclusions (or defects). One typical difficulty is the control of the behavior of the resonances uniformly with respect to the small parameter (here, the volume fraction). This is traditionally done by means of operator theory and (collective) compact convergence. In this talk we show that new regularity estimates allow to provide a different, quantitative, approach. This work is a collaboration with Giovanni S. Alberti (ETH Zurich).