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Title. Decay properties of the Maxwell system with conductivity

Abstract. We discuss the linear autonomous Maxwell system with damping caused by a nonnegative conductivity σ . For the scalar wave equation it is well known that the location of the support of σ often determines the resulting decay behavior. The Maxwell case is far less studied and poses additional difficulties. For instance, the charges (or divergence conditions) play a crucial role as they have to counteract the large kernel of the curl operator. We present two recent results assuming that the permittivity ε and permeability μ are constant. The first one concerns the strong stability in a quite general context. The main difficulty is the closedness of the range of the operator, which is obtained by proving a sort of Poincaré inequality. The second one concerns the polynomial decay if σ is strictly positive on a strip of a cube. This fact follows from a resolvent estimate which is shown by means of the eigenfunctions of the undamped Maxwell problem. This is a joint work with Roland Schnaubelt (Karlsruhe).