

# Asymptotic Stability for a Conducting Electromagnetic Material with a Dissipative Boundary Condition

Giovambattista Amendola<sup>†</sup>

*Dipartimento di Matematica Applicata "U.Dini", Facoltà di Ingegneria,  
via Diotisalvi 2, 56126-Pisa, Italy*

Received: February 14, 2002;    Revised: December 13, 2002

**Abstract:** In this work we study the existence and uniqueness of the solution for a linear electromagnetic material characterized by the memory effects due to a rate-type equation for the electric conduction when a general dissipative boundary condition is assumed on the boundary of the solid. We show the existence of a domain of dependence and we give some limitations of the values of the material constants which assure the asymptotic stability of the solution.

**Keywords:** *Linear electromagnetism; asymptotic stability.*

**Mathematics Subject Classification (2000):** 78A25, 35B35, 35B40.