



Department of Mathematical Sciences

Spring 2018

Colloquium Series

March 2, 2018 at 3pm in Bell Hall 143

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Global Well-Posedness and Exponential Stability for Heterogeneous Anisotropic Maxwell's Equations under a Nonlinear Boundary Feedback with Delay

We consider an initial-boundary value problem for the Maxwell's system in a bounded domain with a linear inhomogeneous anisotropic instantaneous material law subject to a nonlinear Silver-Mueller-type boundary feedback incorporating both an instantaneous damping and a time-localized delay mechanism. Using the maximal monotonicity property of the underlying nonlinear generator, we show the global well-posedness in an appropriate Hilbert space. Further, under suitable assumptions and geometric conditions, we prove the system is exponentially stable.

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