Identification of memory kernels in Maxwell integrodifferntial equations

Francesca Messina

Universit à di Milano

messina@mat.unimi.it

Joint work with A. Lorenzi (Milano and V.G. Romanov (Novosibirsk)

The talk reports some results concerned an integro-differential Maxwell system related to a domain of the form $\Omega \times \mathbf{R} \times \mathbf{R}_+ \times (-\infty, T]$, where Ω is an interval in $\mathbf{R}$. The physical coefficients $\epsilon_0, \sigma_0, \mu_0$ and the memory kernels are assumed to be independent of the x_2-variable.

We recover, under suitable conditions and in a framework of Gevrey-type functions with respect to the variable x_1, the spatial parts $p_1(x_1, x_3)$ and $p_2(x_1, x_3)$ of two factorized kernels $\varepsilon_1(x_1, x_3, t) = p(x_1, x_3)k(t)$ and $\mu_1(x_1, x_3, t) = p_2(x_1, x_3)l(t)$.

In our context *determining* p_1 and p_2 means to show *locally in space* existence, uniqueness and continuous dependence of p on the data.