



Mês de: **Fevereiro 2010**

SEMINÁRIO DE ANÁLISE E EQUAÇÕES DIFERENCIAIS

Dia 25 de Fevereiro (quinta-feira), às 14h15, na Sala B3-01

“Uniqueness of the bifurcating branch in the Freedericksz transition in a liquid crystal cell with weak anchoring”

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Abstract:

We consider a boundary value problem for a quasilinear pendulum equation with non-linear boundary conditions that arises in a classical liquid crystals setup, the Freedericksz transition, which is the simplest opto-electronic switch, the result of competition between reorienting effects of an applied electric field and the anchoring to the bounding surfaces.

A change of variables transforms the problem into the equation $x_{\tau\tau} = -f(x)$ for $\tau \in (-T, T)$, with boundary conditions $x_\tau = \pm \frac{\beta}{T} f(x)$ at $\tau = \mp T$, for a convex non-linearity f . By analyzing an associated inviscid Burgers' equation, we prove uniqueness of monotone solutions in the original non-linear boundary value problem.

This result has been for many years conjectured in the liquid crystals literature.

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