



**Mês de: Novembro 2010**

## **SEMINÁRIO DE ANÁLISE E EQUAÇÕES DIFERENCIAIS**

**Dia 18 de Novembro (quinta-feira), às 13h30, na Sala B3-01**

“Well-posedness, instabilities, and bifurcation results for the flow in a rotating Hele-Shaw cell”

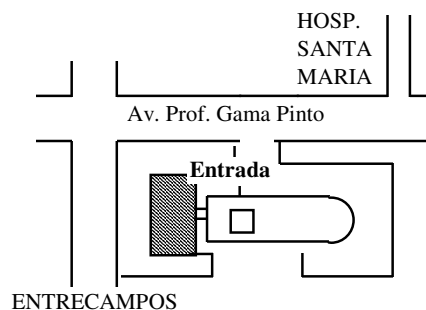
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(Leibniz University Hannover)

**Abstract:**

We study the radial movement of an incompressible fluid located in a Hele-Shaw cell rotating at a constant angular velocity in the horizontal plane. Within an analytic framework, local existence and uniqueness of solutions is proved, and it is shown that the unique rotationally invariant equilibrium of the flow is unstable. There are, however, other time-independent solutions: using surface tension as bifurcation parameter we establish the existence of global bifurcation branches consisting of stationary fingering patterns. The same results can be obtained by fixing the surface tension while varying the angular velocity. Finally, it is shown that the equilibria on a global bifurcation branch converge to a circle, as the surface tension tends to infinity, provided they stay suitably bounded.

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