Instituto de Matemática e Estatística
Universidade Federal Fluminense

# Seminário de Sistemas Dinâmicos da UFF

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## Existence of periodic points near an isolated fixed point with Lefschetz index 1 and zero rotation for area preserving surface homeomorphisms

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**Data:** Sexta feira 24/04/2015
**Hora:** 16h.
**Local:** Auditório da Pós-Graduação - 7º andar do IME.

**Resumo**

Let $f$ be an orientation and area preserving diffeomorphism of an oriented surface $M$ with an isolated degenerate fixed point $z$ with Lefschetz index one. Le Roux conjectured that $z$ is accumulated by periodic orbits. We can approach Le Roux's conjecture by proving that if $f$ is isotopic to the identity by an isotopy fixing $z$ and if the area of $M$ is finite, then $z$ is accumulated not only by periodic points, but also by periodic orbits in the measure sense. More precisely, the Dirac measure at $z$ is the limit in weak-star topology of a sequence of invariant probability measures supported on periodic orbits. Moreover, our proof is purely topological. It works for homeomorphisms and is related to the notion of local rotation set.