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## SEMINÁRIO DE ANÁLISE E EQUAÇÕES DIFERENCIAIS

Dia 16 de março (quinta-feira), às 13h30, sala 6.2.33

# Rate-independent systems and anisotropic dry friction

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**Abstract:** In this talk we discuss how the framework and techniques of rate-independent systems can be applied to models involving dry friction. After a quick overview on the motility of bio-inspired crawlers, we will focus on the genesis of an anisotropy in friction when the interaction is mediated by bristle-like elements. We illustrate a convergence result, showing the rate-independent nature of the limit of a family of systems characterized by a vanishing viscosity and a wiggly perturbation in the energy, scaling to zero. We then apply the result to some simple mechanical models, that exemplify the interaction of a bristle with a surface having small fluctuations, and discuss the effect of the geometry and elasticity of the bristle on the friction coefficients.

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