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SEMINÁRIO DE ANÁLISE E EQUAÇÕES DIFERENCIAIS

Dia 15 de Novembro (quinta-feira), às 13H30, na sala 6.2.33

A free boundary problem on adhering elastic curves

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Abstract

Variational studies of elastic curves are extensively developed from the celebrated study of Euler in 1744. In this talk we consider a free boundary problem of elastic curves, which is formulated as the minimizing problem of an higher order energy defined for planar curves with an obstacle-type constraint. Our total energy contains the effect of adhesion as well as elasticity, so that our problem is regarded as a one-dimensional model of a thin elastic body under an attractive interaction with a non-flat solid substrate: Such a model is widely used for modeling various materials, e.g., vesicle, graphene, etc. The goal of this talk is to explain how physical parameters in the model affect the shapes of minimizers, with a special emphasis on a singular limit that the higher order term of the energy vanishes.

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