



Programa de Pós Graduação em Modelagem Computacional



Palestra

DATA: Quinta-feira, 19 de maio de 2016

HORÁRIO: 14h

LOCAL: Anfiteatro 02 – Prédio Engenheiro Itamar Franco
(Faculdade de Engenharia)

“Modeling of amoeboid cell locomotion: Applications to Dictyostelium discoideum”

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Resumo

Cell locomotion needs the formation of an axis head/tail to define the direction of motion. The polarization is the needle of the compass needed for the cell to move. Without external signal the needle may randomly swing producing a random dynamics. However, under a chemical gradient the directional sensing of the cell produces a persistent motion in the direction of the gradient. Cell motion is produced by the push at the membrane of the actin microfilament network, forming the cytoskeleton. The attachment of the filaments at the membrane is controlled by proteins which have certain affinity for the proteins involved in the polarization process. Therefore, the changes on biochemical concentrations may produce local differences in the pressure, inducing the formation of pseudopodia, rapid projections of eukaryotic cell membranes, responsible for amoeboid cell motion. I will present preliminary results on a phenomenological modeling based in a phase field model approach of the interplay between the mechanics and the biochemistry.