

# COMPUTING THE ASYMPTOTIC BEHAVIOR OF DYNAMICAL SYSTEMS

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**Resumo:** A common problem in dynamical systems theory is to understand the long term (asymptotic) behavior that dynamical systems can typically present. This problem can be approached from several angles, for example by characterizing attractors and their respective basins of attraction, or by developing tools, such as the Hartman-Grobman Theorem, which allows us to compare a class of systems with another (simpler) class of systems which we understand well.

In this talk we will be interested on the problem of knowing, given some class of dynamical systems, if we can *compute* entities related to their long term behavior like attractors, basins of attraction, etc. We will show that it is often the case that one cannot compute such entities, even for very regular systems, and that computability often requires some kind of robustness like structural stability.

**palavras-chave:** Computability, Dynamical systems, Attractors, Basins of attraction