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Title

Reachability Approach to the Persistence of Reaction Networks

Presenter

Gilles Gnacadja
Research and Development Information Systems, Amgen
Thousand Oaks, California, USA
http://math.GillesGnacadja.info/

Abstract

For a reaction network, persistence is the property that no species tend to extinction if all species are initially present. We call vacuous persistence a stronger property: the same asymptotic feature when all species are implicitly present. We will present a necessary and sufficient condition for vacuous persistence in terms of reachability, describe two classes of vacuously persistent networks relevant to biochemistry, and relate our condition to known sufficient conditions for persistence.

Keywords

Reaction Networks; Persistence

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