IWR-Colloquium Winter Term 2016 / 2017

January 11, 2017
16:15h
Mathematikon, Conference Room / 5th Floor
Im Neuenheimer Feld 205, 69120 Heidelberg

Speaker:

Prof. Mats Gyllenberg, University of Helsinki

Title:

"Finite dimensional state representation of linear and nonlinear delay systems"

Abstract:

We consider the question of when delay systems, which are intrinsically infinite dimensional, can be represented by finite dimensional systems. Specifically, we give conditions for when all the information about the solutions of the delay system can be obtained from the solutions of a finite system of ordinary differential equations. For linear autonomous systems and linear systems with time-dependent input we give necessary and sufficient conditions and in the nonlinear case we give sufficient conditions. The ideas and results are illustrated by models for infectious diseases and physiologically structured populations.

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Website IWR-Colloquium:
www.iwr.uni-heidelberg.de/iwr-colloquium