Fachbereich Mathematik
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UNIVERSITÄT SALZBURG

Gastvortrag

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Seminarraum II
10 Uhr

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Continuation and Bifurcation Associated to the Dynamical Spectral Sequence

Abstract

In this talk we will present results from joint work with Octav Cornea, Margarida Mello, Mariana Silveira and Robert Franzosa. For a filtered chain complex *C* and its differential given by a connection matrix Δ we will determine an associated spectral sequence (E^r, d^r). We present an algorithm which sweeps the connection matrix in order to span the modules E^r in terms of bases of *C* and gives the differentials d^r. In this process a sequence of similar connection matrices and associated transition matrices are produced. This algebraic procedure can be viewed as a continuation where the transition matrices give information about the bifurcation behavior. We introduce directed graphs, called flow and bifurcation schematics, that depict bifurcations that could occur if the sequence of connection matrices and transition matrices were realized in a continuation of a Morse Decomposition, and we present a dynamic interpretation theorem that provides conditions on a parameterized family of flows under which such a continuation could occur. The sweeping algorithm and the computation of the spectral sequence (E^r, d^r) are implemented in the software Mathematica ®.

Einladende: Maria Alice Bertolim