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From invariant manifolds to fiber bundles: Numerical dynamics of integrodifference equations

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Integrodifference equations are successful models to describe spatial dispersal and temporary evolution. For this reason they can be understood as a discrete-time counterpart to reaction-diffusion equations and form an interesting class of infinite-dimensional dynamical systems. Nevertheless, for the sake of numerical simulations integrodifference equations require a spatial discretization.

In this talk, we investigate how their full hierarchy of invariant manifolds (stable, center-stable, center, center-unstable, unstable) behaves under the commonly used discretizations methods. We begin with the classical situation near periodic solutions and proceed to a general nonautonomous framework.

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