Programme du 50e : Méthodes computationnelles rigoureuses et topologiques
pour la dynamique en grande dimension
« Atelier sur la dynamique de calcul rigoureuse dans des dimensions infinies »
3 au 6 avril 2019

50th anniversary program : Topological and Rigorous Computational Methods
for High Dimensional Dynamics
"Workshop on Rigorous Computational Dynamics in Infinite Dimensions"
April 3-6, 2019

Validated forward integration scheme for a class of parabolic PDEs (introduction to)

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Joint work in progress with Jean-Phillipe Lessard. I will present our validated numerical scheme for integrating forward in time a class of parabolic differential equations. Up to our knowledge, this is the first working method based on Chebyshev series expansion in time. The crucial part is to obtain a constructive bounds for the inverse tridiagonal operator arising from Chebyshev-time, Fourier-space expansion of a parabolic PDE.

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