



Mathematics and CS Seminar

Classical dynamics of infinite particle systems in an operator algebraic framework

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Host: Robert Seiringer

In this seminar I present a study on the dynamics of classical infinite particle systems describing harmonic oscillators interacting with arbitrarily many neighbors on lattices, as well on more general structures; and I show that this enables the construction of C^* -dynamical systems. This approach allows particles with varying masses, varying frequencies, irregularly placed lattice sites and varying interactions subject to a simple summability constraint. A key role is played by the commutative resolvent algebra, which is a C^* -algebra of bounded continuous functions on an infinite dimensional vector space, and in a strong sense the classical limit of the Buchholz-Grundling resolvent algebra, which suggests that quantum analogs of our results are likely to exist. For a general class of Hamiltonian dynamics, it is demonstrated that this algebra is time-stable, and admits a time-stable sub-algebra on which the dynamics is strongly continuous, therefore obtaining a C^* -dynamical system. Joint work with van Nuland (TU Delft)

Tuesday, June 18, 2024 04:30pm - 05:30pm

Office Bldg West / Ground floor / Heinzl Seminar Room (I21.EG.101)



This invitation is valid as a ticket for the ISTA Shuttle from and to Heiligenstadt Station.

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<https://ista.ac.at/en/campus/how-to-get-here/> The ISTA Shuttle bus is marked ISTA Shuttle (#142) and has the Institute Logo printed on the side.