



Sommerfeld Theory Colloquium

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Active quantum flocks

Flocks of animals represent a fascinating archetype of collective behavior in the macroscopic classical world, where the constituents, such as birds, concertedly perform motions and actions as if being one single entity. In this talk I will argue that flocks can also form in the microscopic world at the quantum level. For that purpose, I will introduce the concept of active quantum matter by formulating a class of models of active quantum particles on a one-dimensional lattice. We provide both analytical and large-scale numerical evidence that these systems can give rise to quantum flocks. A key finding is that these flocks exhibit distinct quantum properties by developing a strong quantum coherence over long distances impossible for classical systems.

Wednesday, 19 July 2023, 16:15h, Room A348/and/via/Zoom, Theresienstr. 37/III

Prof. J. v. Delft