Prof. Dr. Peter van Loock
Institut für Physik
loock@uni-mainz.de

Dr. Lars von der Wense
Institut für Physik
lars.vonderwense@uni-mainz.de

JOHANNES GUTENBERG UNIVERSITÄT MAINZ

Seminar über Quanten-, Atom- und Neutronenphysik (QUANTUM)

April 20, 2023 at 2 p.m. c.t.
IPH Lorentzraum 05-127

Dr. Fernando Lemini
ICTP (Intl. Center for Theoretical Physics), Trieste, Italy

Boundary Time-Crystals

I discuss the concept of boundary time crystals, where the continuous time-translation symmetry breaking occurs only in a macroscopic fraction of a many-body quantum system. After introducing its definition and properties, we discuss in detail a solvable model where an accurate scaling analysis can be performed. The existence of the boundary time crystals is intimately connected to the emergence of a time-periodic steady state in the thermodynamic limit of a many-body open quantum system. I will also discuss the spreading of genuine multipartite correlations (GMC's) on such phases, showing results both for the (i) the structure (orders) of GMC's among its subsystem constituents, as well as (ii) their build-up dynamics for an initially uncorrelated state.

Contact:
Andrea Graham
Institut für Physik
graham@uni-mainz.de