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Forum de Physique Statistique @ ENS

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Titre : *Unconventional Phase Transitions in Open Markovian Quantum Systems*

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Résumé : *A number of experimental platforms for quantum simulations, from ultracold atoms to Rydberg and circuit QED arrays, can be modeled as open Markovian quantum many-body systems, where coherent (Hamiltonian) evolution competes with dissipative processes due to external environments or stochastic measurements. Out of this competition, a variety of non-trivial stationary states and dynamical behavior emerge and novel critical phenomena arise, which are unique to this open setting. In this talk I will review recent progress in this field and present our results on prototype models for strongly correlated open Markovian systems, displaying genuine nonequilibrium effects such as finite-frequency criticality and breaking of time-translational symmetry (aka quantum time-crystals), quantum multistability, or non-hermitian phase transitions.*