



UNIVERSITÄT
LEIPZIG

Fakultät für Physik und
Erdsystemwissenschaften

Prof. Dr. J. Deiglmayr
Prof. Dr. I. Sodemann

Physics Colloquium

Tuesday, 19 Dec 2023 at 16:30

Prof. Dr. Leticia F. Cugliandolo

Sorbonne Université, Paris, France

Phases and topological defects in passive and active systems in two dimensions



Long-range translational order is forbidden in low dimensional systems with short-range interactions: solid phases can only have quasi long-range translational order while they keep long-range orientational order. The standard picture is that the melting transition occurs in two steps: an intermediate phase with quasi long-range orientational order is reached by the unbinding of dislocations while the transition to the liquid is triggered by the unbinding of disclinations.

In this talk I will revisit all these issues and I will extend their analysis to systems of self-propelled particles, the constituents of active matter, a new kind of soft matter relevant to describe numerous biological problems. The dynamics across various phase transitions will also be discussed. A new scenario emerges from extensive molecular simulations studies.

Joint Colloquium with **CompPhys23**, Leipzig, 19–21 December 2023

Venue: Universität Leipzig, Faculty of Physics and Earth Sciences
04103 Leipzig, Linnéstraße 5, **Lecture Hall for Theoretical Physics**

Before the lecture, coffee and cookies are offered in the Aula

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