

# SEMPARIS – Séminaires en région parisienne

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## Forum de Physique Statistique @ ENS

**Mercredi 24 Novembre 2021, 14 :30**

LPENS, Zoom( please ask [xiangyu.cao@ens.fr](mailto:xiangyu.cao@ens.fr) for a zoom link )

Domaines : cond-mat.stat-mech

Titre : *Quantum criticality and out-of-equilibrium scaling in long-range systems and beyond*

Orateur : **Nicolò Defenu ( ETH Zurich )**

Résumé : *The seminar is meant to present an bird's eye view on the field of long-range interacting quantum systems, following the path followed by N. Defenu in his research. The talk we start with a brief overview of critical phenomena in systems with power law interactions  $1/r^\alpha$  in the "weak" long-range regime  $\alpha > d$ . Then, it will describe the peculiar out-of-equilibrium dynamics observed in "strong" long-range systems. Finally, it will deal with the seemingly unconnected physics of 2- components fermi gases confined in 2D. The connection between this topic and the previous studies of long-range interactions will be outlined.*

[1] A. P. Millán, G. Gori, F. Battiston, T. Enss, ND, *Phys. Rev. Research* 3, 023015 (2021).

[2] ND, *Proc. Nat. Acad. Sci.* 118, e2101785118 (2021).

[3] P. A. Murthy, N. Defenu, L. Bayha, M. Holten, P. M. Preiss, T. Enss, S. Jochim, *Science* 365, 268-272 (2019).

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