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Critical relaxation in AdS/CFT

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It is not only known that hairy black holes can exist in asymptotically Anti-de Sitter (AdS) spaces, but also that in the context of the Anti-de Sitter/Conformal Field Theory (AdS/CFT) correspondence, such black holes can be interpreted as holographic duals of superfluids. After a perturbation, these black holes usually exhibit an exponentially damped ringing down described by quasi-normal modes, however, I will show that for perturbations around the exact critical point that characterizes the onset of the formation of scalar hair this relaxation will exhibit a power law behaviour at late times. I will also explain how this can be interpreted through the lens of the AdS/CFT correspondence.

Presenter(s) : FLORY, Mario (Jagiellonian University Krakow)