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Entanglement measures in Extended Quantum Systems: The Negativity Spectrum

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In recent years the irruption in other research fields of concepts and methods coming from Quantum Information Theory turned out to be very fruitful. So far, particular attention has been devoted to the characterization of different measures of entanglement [1, 2] in physical states of extended systems such as quantum field theories (QFT) and more generally speaking many-body quantum matter.

In this talk, I will review the QFT approach to entanglement measures [3] and then concentrate to the case of conformal field theories in (1+1) dimensions. Among the entanglement measures, I will introduce a new measure, that we dubbed "negativity spectrum" [4], being a sort of the analogous of the entanglement spectrum for the case of mixed states of quantum systems.

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References:

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[4] P. Ruggiero, V. Alba, P. Calabrese, Negativity spectrum of one-dimensional conformal field theories, Phys. Rev. B 94, 195121 (2016)

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