The Abdus Salam International Centre for Theoretical Physics

Conference on Long-Range Interacting Many-Body Systems: from Atomic to Astrophysical Scales (25 - 29 July 2016)

Venue: ICTP Leonardo da Vinci Building - Budinich Lecture Hall
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Title:

Formation probabilities, entanglement entropy and Casimir effect in quantum spin chains

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Abstract:

I will first demonstrate a relation between formation probabilities (the probability of occurrence of a particular configuration in part of the quantum system) in quantum systems and the critical Casimir energy of floating needles. Using this connection I will provide different formulas for the formation probability of quantum critical systems. Finally I will show a connection between entanglement entropy and the critical Casimir energy.

ref: MAR, Europhysics Letters, 112, 66001 (2015)
K. Najafi, MAR, Phys. Rev. B 93, 125139 (2016)
MAR, Phys. Rev. B 92, 075108 (2015)
MAR, J. Stat. Mech. (2016) 063109
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