

## 27th Rencontres ITZYKSON : Fluctuations far from Equilibrium



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### **Davide GABRIELLI - Hidden Temperature in the Kipnis-Marchioro-Presutti model**

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Stationary non equilibrium states (SNS) have a rich and complex structure. The large deviations rate functionals for the empirical measure of a few one dimensional SNS of stochastic interacting systems have been computed, among which the exclusion process and the Kipnis-Marchioro-Presutti (KMP) model. The corresponding rate functionals are not local due to the presence of long range correlations. We show for the KMP model that this can be explained introducing new variables that can be interpreted naturally as the temperatures of the oscillators that are exchanging the energies. When two oscillators exchange energy they thermalize at the same time. We deduce that the invariant measure of the KMP model is a mixture of inhomogeneous product of exponential distributions, the law of the mixture is the invariant measure of the auxiliary temperature process. Joint work with Anna De Masi and Pablo Ferrari.

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