SEMPARIS – Séminaires en région parisienne

http ://string.lpthe.jussieu.fr/semparis/

Séminaire de physique mathématique

Lundi 12 Novembre 2018, 11 :00
IPHT, Salle Claude Itzykson, Bât. 774
Domaines : math-ph

Titre : *Conformal field theory on top of a breathing Tonks-Girardeau gas*

Orateur : **Paola Ruggiero**

Résumé : *CFT has been extremely successful in describing universal effects in critical one-dimensional (1D) systems, in situations in which the bulk is uniform. However, in many experimental contexts, such as quantum gases in trapping potentials and in several out-of-equilibrium situations, systems are strongly inhomogeneous.*

Recently it was shown that the CFT methods can be extended to deal with such 1D situations : the system's inhomogeneity gets reabsorbed in the parameters of the theory, such as the metric, resulting in a CFT in curved space.

Here in particular we make use of CFT in curved spacetime to deal with the out-of-equilibrium situation generated by a frequency quench in a Tonks-Girardeau gas in a harmonic trap.

We show compatibility with known exact result and use this new method to compute new quantities, not explicitly known by means of other methods, such as the dynamical fermionic propagator and the one particle density matrix at different times.

REFERENCES :
(1) J. Dubail, JM. StÃ©phan, J. Viti, P. Calabrese, SciPost Phys. 2, 002 (2017).
(2) J. Dubail, JM. StÃ©phan, P. Calabrese, SciPost Phys. 3, 019 (2017).
(3) P. Ruggiero, Y. Brun, J. Dubail, To appear.
(4) S. Murciano, P. Ruggiero, P. Calabrese, To appear.