



## AVVISO DI SEMINARIO

Il giorno martedì 3 novembre 2015 alle ore 11,00  
presso l'Area della Ricerca CNR di Pisa, Aula 33, piano Terra, Edificio "A"

*il Dr. Luca TADDIA*

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*terrà un seminario sul tema:*

# **Synthetic gauge field and synthetic dimension in ultracold interacting Fermi gases**

### Abstract.

The recently introduced concept of synthetic gauge field in synthetic dimension opens the possibility of studying the properties of (quasi)  $(d+1)$ -dimensional systems in a classical gauge field by means of  $d$ -dimensional multi-species lattice gases, both theoretically [1] and experimentally [2]. I will show how the presence of interactions affects the physics of the system, leading to properties resembling fractional quantum Hall effect [3,4].

### References:

- [1] A. Celi, P. Massignan, J. Ruseckas, N. Goldman, I. B. Spielman, G. Juzeliūnas, and M. Lewenstein, Phys. Rev. Lett. 112, 043001 (2014).
- [2] M. Mancini, G. Pagano, G. Cappellini, L. Livi, M. Rider, J. Catani, C. Sias, P. Zoller, M. Inguscio, M. Dalmonte, and L. Fallani, Science 349, 1510 (2015).
- [3] S. Barbarino, L. Taddia, D. Rossini, L. Mazza, and R. Fazio, Nat. Comm. 6:8134 (2015).
- [4] S. Barbarino, L. Taddia, D. Rossini, L. Mazza, and R. Fazio, arXiv:1510.05603.