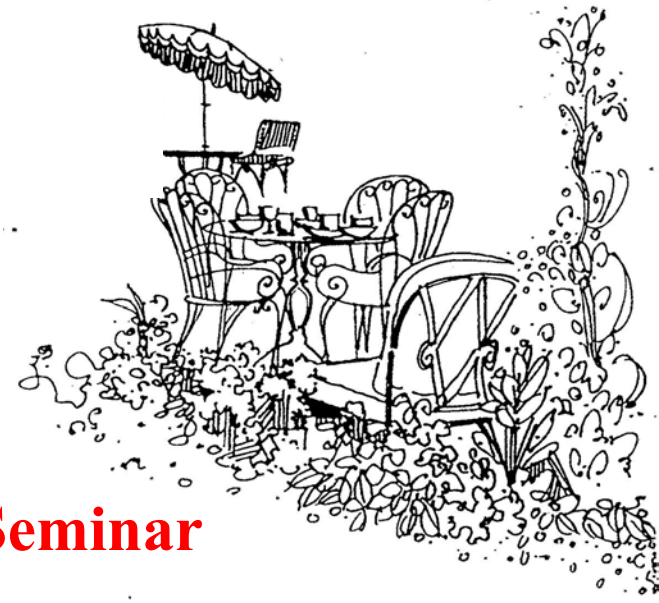
Chez Pierre

Presents ...

Monday, February 10, 2020

12:00pm Noon

MIT Room 4-331



Chez Pierre Seminar

Bertrand I. Halperin – Harvard University

"Quantum Hall Effects in Coulomb-Coupled Layers."

For a multilayer system in the quantum Hall regime, when the distance between conducting layers is comparable to the distance between electrons within a layer, the Coulomb interaction between electrons in different layers can lead to new types of quantum Hall states. Recent experiments by groups from Harvard and Columbia on Coulomb-coupled graphene double layers have found new fractional quantized states and have shed new light on the previously studied interlayer-coherent integer quantized state. [1-3] I will review some of these experimental results as well as the theoretical picture behind them.

[1] Xiaomeng Liu, Zeyu Hao, Kenji Watanabe, Takashi Taniguchi, Bertrand Halperin, and Philip Kim, Nature Phys. 15, 893 (2019)

[2] J.I.A. Li, Q. Shi, Y. Zeng, K. Watanabe, T. Tanaguchi, J. Hone, and C.R. Dean, Nature Phys. 15, 898 (2019)

[3] Manuscript in preparation