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Strongly Repulsive Quantum Gases¹

TIN-LUN HO, Physics Department, The Ohio State University

Advances in cold atom experiments have shown that the properties of repulsive Fermi and Bose gases are far more intricate than generally expected, as these systems can produce molecules even in the weakly interacting regime. Recent experiments, however, reveal some general yet puzzling properties of these gases in the strongly repulsive regime. In this talk, we show that these properties are direct consequences of statistics, and are fundamental properties of quantum gases [1]. We shall also discuss the related issue of itinerant ferromagnetism, and discuss the physical settings in which ferromagnetism can be found.

[1] V. B. Shenoy and Tin-Lun Ho, arXiv: 1106.0960, to appear in Physical Review Letters

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