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**Luttinger liquid of trimers in the asymmetric Fermi Hubbard model** GIULIANO ORSO, LMU Muenchen, EVGENI BUROVSKI, THIERRY JOLICOEUR, LPTMS, University of Paris South — We investigate attractive fermions in a one dimensional optical lattice with unequal tunneling rates [1]. Due to the mass asymmetry, the microscopic model is not integrable and multi-particle bound states appear. We focus on trimers, namely three-body bound state made of one light and two heavy fermions. We first present the exact solution of the three-body problem, yielding the binding energy and the effective mass of a single trimer. Based on DMRG simulations, we then show that trimers can open an energy gap at finite commensurate densities, leading to a suppression of superconducting correlations and topological changes in the grand-canonical phase diagram. [1] G. Orso, E. Burovski and T. Jolicoeur, arXiv:0907.1533

Giuliano Orso
LMU Muenchen

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