



Physical Sciences Seminar

Quantum seminar with Piotr Tadeusz Grochowski

Piotr Tadeusz Grochowski

Center for Theoretical Physics Warsaw

Host: Maksym Serbyn

We employ time-dependent density functional theory and atomic orbital approach to study dynamics of binary, repulsive quantum gases undergoing a phase separation [1,2]. With our methods, we reproduce recent experimental data in both Fermi-Fermi [3] and Bose-Fermi mixtures [4]. By combining classical fields description of bosons and hydrodynamic model of fermions, we provide a reliable framework which allows us to investigate a finite temperature dynamics of a BEC immersed in a polarized Fermi gas. As an additional treat, an aesthetically appealing result will be presented – the fermionic quantum carpet [5,6]. [1] Trappe et al., Phys. Rev. A 93, 023612 (2016) [2] Karpiuk et al., SciPost Phys. 8, 066 (2020) [3] Grochowski et al., Phys. Rev. Lett. 119, 215303 (2017) [4] Grochowski et al., Phys. Rev. Lett. 125, 103401 (2020) [5] Grochowski et al., Phys. Rev. Research 2, 013119 (2020) [6] ebek et al., arXiv:2011.04582 Join Zoom

Meeting <https://istaustria.zoom.us/j/96382450522?pwd=NWkrQnVtWW05NzVpd0hPNVJqSThPd09Meetin>
g ID: 963 8245 0522 Passcode: 568837 One tap mobile +436703090165,,96382450522# Austria

Wednesday, March 24, 2021 03:00pm - 04:00pm

via Zoom

<https://istaustria.zoom.us/j/96382450522?pwd=NWkrQnVtWW05NzVpd0hPNVJqSThPd09>



This invitation is valid as a ticket for the ISTA Shuttle from and to Heiligenstadt Station.

Please find a schedule of the ISTA Shuttle on our webpage:

<https://ista.ac.at/en/campus/how-to-get-here/> The ISTA Shuttle bus is marked ISTA Shuttle (#142) and has the Institute Logo printed on the side.