

The world of strongly correlated fermions: Beyond the Landau Fermi-liquid picture

Józef Spalek

Marian Smoluchowski Institute of Physics, Jagiellonian University, 30-348 Kraków

In my talk I will present selected fundamental aspects of description of the strongly correlated fermions on example of quantum electronic liquids. I focus on two examples: high-temperature superconductivity and the systems with the Mott Hubbard localization-delocalization transition. The construction of a specific variational approach allows for an interpolations between weak- and strong-correlation (interaction) limits. The results will be compared to basic experiment data concerning those two phenomena.

The project was supported by the Grant MAESTRO from Narodowe Centrum Nauki, No. DEC-2012/04/A/ST3/00342.