Subject: Fundamental limit on electron-phonon interaction strength in metals
Speaker: Prof. Dr. Emil Yuzbashyan, Rutgers University USA
Date & time: Friday, December 9th, 2022 at 3:15 p.m.
Venue: Room 01.114 and online:
Zoom Link: https://uni-frankfurt.zoom.us/j/96520912647?pwd=NWZneE5XQmlwZFJUXJpcUhDNEtKQT09

Abstract

I’ll show that the dimensionless electron-phonon coupling $\lambda$ cannot exceed a certain critical value (approximately 3.7) in metals. Increasing $\lambda$ beyond this value leads to a structural instability accompanied by a metal-insulator transition. This also implies an upper bound on the superconducting $T_c$. We’ll compare the bounds on $\lambda$ and $T_c$ with existing experimental data.