ICTS | INTERNATIONAL CENTRE for THEORETICAL SCIENCES

TATA INSTITUTE OF FUNDAMENTAL RESEARCH

ICTS Condensed Matter Seminar

Title : Hall coefficient in strongly correlated metals

Speaker : Sauri Bhattacharyya (Technion, Haifa, Israel)

Date : Wednesday, 8th May 2024

Time : 11:30 AM (IST)

Abstract : The Hall coefficient of weakly interacting systems can be related to their density of effective charge carriers. However, in presence of strong correlations, one observes `Hall anomalies', i.e. abrupt changes in sign and magnitude of the Hall coefficient. We study two model problems- (i) the t-J model, and (ii) the hardcore boson model and calculate the Hall coefficient using a recently developed formula in terms of thermodynamic susceptibilities. The high temperature behaviour is calculated semi-analytically using high temperature expansions. The lower temperature behaviour is estimated using QMC computations. We show that in both cases, the Hall coefficient diagnoses the 'minority carriers' and the usual Fermi liquid-Boltzmann theory ideas become inapplicable.

Venue : Emmy Noether Seminar Room

Zoom Link: https://icts-res-in.zoom.us/j/99822052994?pwd=RHVQTXYwMjBPak1ITDdoNEovejdZQT09

Meeting ID: 998 2205 2994
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