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CENTER FOR THEORETICAL PHYSICS



# Sommerfeld Theory Colloquium

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## A new type of quantum liquid

Quantum liquids are characterized by distinctive properties such as the low temperature behavior of heat capacity and the spectrum of low-energy quasiparticle excitations. In particular, at low temperature, Fermi liquids exhibit the "zero sound", predicted by L.D. Landau in 1957 and subsequently observed in liquid He-3. The specific heat for a Fermi liquid is linear in any number of dimensions. In this talk I will present an analysis of the low temperature behavior of a class of strongly coupled fermion systems that can be analyzed using a dual gravitational description. While we find that the zero sound mode exists in these systems, the specific heat scales non-linear with temperature with a dimension-dependent exponent. Our finding indicates that non Fermi Liquid behavior may be generic in strongly coupled fermionic systems and thus one may expect to discover new types of quantum liquids in nature.

Wednesday, 16<sup>th</sup> July 08, 11:15 h, Room 348 / 349, Theresienstr. 37 / III