

Theoriekolloquium

Am **13. Januar 2011** um **14.15 Uhr** in **W2 1-143** hält

Herr Dr. Tilman Enss (TU München)

einen Vortrag mit dem Titel

**Searching for the perfect fluid:
Viscosity and scale invariance in the unitary Fermi gas**

We compute the shear viscosity of the unitary Fermi gas above the superfluid transition temperature, using a diagrammatic technique that starts from the exact Kubo formula. The formalism obeys a Ward identity associated with scale invariance which guarantees that the bulk viscosity vanishes identically. The frequency dependent shear viscosity $\eta(\omega)$ exhibits a Drude-like transport peak and a power-law tail at large frequencies that is proportional to the Tan contact. The ratio η/S between the static shear viscosity and the entropy density exhibits a minimum near the superfluid transition temperature whose value is larger than the string theory bound $\hbar/(4\pi k_B)$ by a factor of about seven.

Interessierte sind herzlich eingeladen.

gez. Prof. Dr. Martin Holthaus