GESELLSCHAFT DEUTSCHER CHEMIKER
ORTSVERBAND HANNOVER

Einladung zum GDCh-Colloquium des Ortsverbandes Hannover

Das Colloquium findet um 17c.t. im Dr.-Oetker Hörsaal (Raum 007, Geb. 2504) der Leibniz Universität Hannover, Physikalische Chemie, Callinstraße 3A, 30167 Hannover statt.

18.06.2026 **Prof. Dr. Mona Zebarjadi**, University of Virginia,
Electrical and Computer Engineering Department
Material Science and Engineering Department

2D Material Thermal Metrology and Phase Change for Heat Management

Micron-scale on-chip cooling, heat management, and precise temperature control are increasingly critical as electronic technologies advance toward nanoscale architectures, flexible wearables, and portable thermal devices. Conventional mechanical refrigeration is unviable at these length scales due to fundamental limits on miniaturization. Consequently, solid-state cooling approaches that rely on passive and active heat transfer through engineered materials are strictly required. Among these, two-dimensional (2D) layered materials and thin-film intermetallics are particularly attractive due to their structural compatibility with chip-scale integration.

A key prerequisite toward implementing such technologies is mapping structure-property relationships via accurate thermal characterization, especially in-plane thermal conductivity measurements of supported thin films. In this talk, I will review our work on probing lattice dynamics and phonon transport in supported 2D frameworks. Furthermore, I will discuss how we leverage electric and magnetic fields to manipulate energy flow through chemical bonds. In particular, we demonstrate that enhanced Thomson cooling is achievable near structural, electronic, or magnetic phase transitions—such as charge density waves (CDWs)—where sudden rearrangements in electronic structure yield sharp anomalies in the Seebeck coefficient.

Prof. Dr. Jens-Uwe Grabow
Vorsitz OV Hannover

Vor dem Colloquium findet ab ca. 16 c.t. eine ‚Kaffeerunde' mit dem Vortragenden in der Bibliothek des Instituts für Physikalische Chemie, Callinstraße 3A statt.