

On behalf of the

Science College CMS
Vienna Computational Materials Laboratory
and Center for Computational Materials Science

we cordially invite you to the following seminar

O. Univ.-Prof. Dr. Eckhard Krotscheck

Institut für Theoretische Physik, JKU Linz, Austria

**A Microscopic view of Many-Body Systems: Strong interactions,
Structure and Dynamics**

I give a review of the development of microscopic many-particle theory for strongly interacting systems over the past three decades. In the first part, I discuss design considerations for a manifestly microscopic theory. Very simple demands such as *robustness* of the theory with respect to the choice of the Hamiltonian, and *stability* provide minimum standards for a satisfactory description of the underlying physics. A few examples of inhomogeneous electronic systems and bulk quantum fluids document the quantitative predictive power of modern many-body methods.

In the second part I discuss a crucial recent experiment: Neutron scattering experiments off two-dimensional ^3He . The experimental findings are in clear contradiction to common semi-phenomenological interpretations of the dynamic structure function of three-dimensional ^3He , but can be well understood in terms of microscopically defined energy dependent effective pair interactions.

Date: Monday, Dec 06, 2010 16:00

Location: Seminar room 138C (TU Freihaus 9. Stock, **gelb**)
A-1040 Wien, Wiedner Hauptstraße 8-10