



TECHNISCHE
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ANGEWANDTE PHYSIK
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IAP-SEMINAR

EINLADUNG

Termin: **Dienstag, 19.6.2012 um 16:00 Uhr**
Ort: **Technische Universität Wien,
Institut für Angewandte Physik,
Seminarraum 134A, Turm B (gelbe Leitfarbe), 5. OG
1040 Wien, Wiedner Hauptstraße 8-10**

Vortragender: **Dipl.-Ing. Francesc Salvat-Pujol**
TU Wien, IAP

Thema: **On the emission of secondary electrons from solids -
Coincidence experiments and dielectric formalism**

Kurzfassung

The emission of secondary electrons (SE) from solid surfaces is a physical phenomenon which has been known for over a hundred years. It plays a relevant role in a number of applications, for instance in particle-detector technology (channeltrons, microchannel plates, photomultiplier tubes, etc.). In charged-particle accelerators, the presence of a cloud of SE emitted from the walls of the accelerator affects the stability of the particle beam. Similarly, SE emission critically affects the charge balance in electronic devices such as plasma displays.

In spite of its widespread use, the mechanisms responsible for SE emission are far from being understood on a detailed and quantitative level: recent independent measurements of the SE yield from aluminum under electron bombardment exhibit discrepancies of as much as a factor of seven. In this seminar talk I will present the outcome of a series of measurements of SE emission in coincidence with selected energy losses of backscattered electrons from several materials. The experimental data give insight into the mechanisms responsible for SE emission in an unprecedented detail. The interpretation of the measured data is supported by Monte Carlo simulations of electron transport. A brief overview of the semiclassical dielectric formalism used to describe energy losses (both in the bulk of the medium and in the surface region) will be given in addition, paying special attention to highlight surface excitations and the role they play in SE emission.

*Alle interessierten Kolleginnen und Kollegen sind zu diesem Seminar
(45 min mit anschließender gemeinsamer Diskussion) herzlich eingeladen.*

*W. Werner e.h.
(Seminar-Chairperson)*

*H. Störi e.h.
(LVA-Leiter)*