

## Institutskolloquium

Am Montag, den **23. März 2009, 16.00 Uhr** spricht:

**Prof. Dr. Marlan Scully**  
**Texas A&M University and Princeton University**

über

### **“USING QUANTUM MECHANICS TO DETECT ANTHRAX”**

Counterintuitive effects such as amplification without noise and lasing without inversion are examples of quantum coherence. More recently, the study of quantum coherence effects has led to improvements in laser spectroscopy which allow us to “instantaneously” detect anthrax type endospores.[1],[2] In the latter example, marker molecules in the endospore are put into maximal oscillation which is detected by scattering laser light off the coherently oscillating molecules. This is called coherent Raman scattering and is a type of D<sub>2</sub> superradiance. The preceding topics were tempered and advanced in the heat of vigorous debate.

[1] Science, **316**, 265 (2007).

[2] Proc. Nat. Acad. Sci., **105**, 422 (2008).

**Ort: Max-Born-Saal, MBI, Max-Born-Str. 2a**

Interessenten und Gäste sind herzlich eingeladen.

Prof. Dr. T. Elsässer