

Physics Colloquium

Monday March 20th, 2006

4:15 PM 428 Pupin Hall

Professor Gerhard Abstreiter

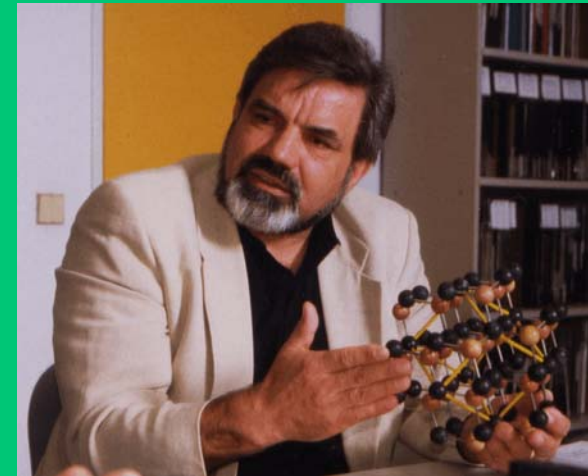
Technische Universität Muenchen

“Manipulating and Controlling Semiconductor Quantum Dots”

I will discuss the well controllable electro-optical properties of self assembled InGaAs quantum dots embedded in special Schottky diode structures. This includes the charge and spin storage, the coherent control of a single quantum dot photodiode as well as the controlled coupling of vertically stacked dots. The coherent control of charges, spins and photons are first steps towards semiconductor based quantum information technology.

The talk is based on the following recent publications:

- [1] M. Kroutvar et al., Nature 432, 81 (2004)
- [2] A. Zrenner et al., Nature 418, 612 (2002)
- [3] S. Stufler et al., PRB 72, 121301-1 (2005)
- [4] H. J. Krenner et al. New Journal of Physics 7, 184 (2005)
- [5] H. J. Krenner et al., PRL 94, 057402 (2005)
- This work is supported financially by German Research Association via collaborative research center 631 and by German Federal Ministry of Education and Research via NanoQuit.



Host: Professor Pinczuk