



**Sonderforschungsbereich 631**  
Festkörperbasierte Quanteninformationsverarbeitung



jointly with



## Seminar Announcement

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**Monday, March 21, 2011, 16:00 h**  
**Auditorium, Room 0.001, Institute for Advanced Study**  
**Lichtenbergstraße 2 a, 85748 Garching**

### Superconducting qubits as artificial atoms

**Dr. Yasunobu Nakamura**

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In 1999, Yasunobu Nakamura was triggering the prospering field of solid state quantum information processing by his seminal paper on the "*Coherent control of macroscopic quantum state in a Cooper-pair box*" (Y. Nakamura *et al.*, Nature 398, 786-788 (1999)), for which he was receiving several awards (Nishina Memorial Award, Sir Martin Wood Prize, Agilent Technologies Europhysics Prize, Simon Memorial Prize). In his talk he will address some fascinating recent experiments using superconducting qubits as artificial atoms.

Recent publications:

- O. Niskanen *et al.*, "Quantum Coherent Tunable Coupling of Superconducting Qubits", Science 316, 723 (2007).
- Chiorescu *et al.*, "Coherent dynamics of a flux qubit coupled to a harmonic oscillator", Nature 431, 159-162 (2004)
- T. Yamamoto *et al.*, "Demonstration of conditional gate operation using superconducting charge qubits", Nature 425, 941 (2003).
- Chiorescu, Y. Nakamura, C. J. P. M. Harmans and J. E. Mooij, "Coherent Quantum Dynamics of a Superconducting Flux-qubit", Science 299, 1869 (2003).
- Y. Nakamura, Yu. A. Pashkin, T. Yamamoto, and J. S. Tsai, "Charge echo in a Cooper-pair box", Phys. Rev. Lett. 88, 047901 (2002).