

## EINLADUNG

zum Vortrag von

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über

### Coherent Nonlinear Optical Spectroscopy of Proteins: Femtosecond Analogues of Multidimensional NMR

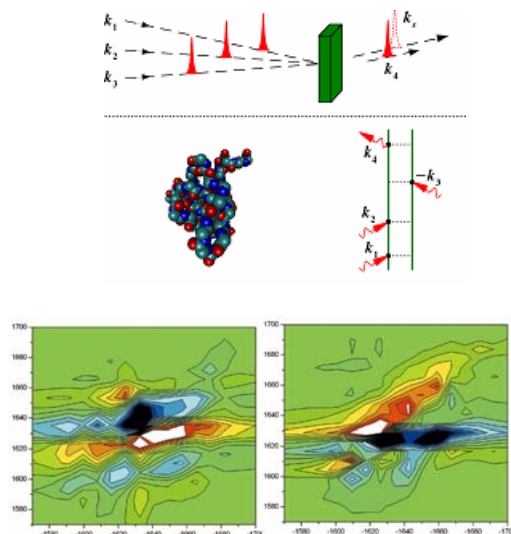
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**Dienstag, 27. Juni 2006, um 17.30 Uhr**

im Großen Hörsaal des Instituts für Experimentalphysik der Universität Wien  
1090 Wien, Strudlhofgasse 4 / Boltzmannngasse 5, 1. Stock

#### Abstract:

The response of complex biomolecules to sequences of ultrafast optical pulses provides multidimensional snapshots of their structure and electronic and vibrational dynamics. Two-dimensional correlation plots of the signals show characteristic cross-peak patterns whose lineshapes reflect environmental fluctuations. The fundamental concepts underlying the design and interpretation of these coherent nonlinear optical experiments will be surveyed. New pulse sequences may be constructed for probing specific coherences building upon the analogy with multidimensional NMR. Computational techniques for the necessary multipoint response functions based on a fluctuating exciton hamiltonian will be presented. Applications will be made to ideal secondary structural motifs of peptides, protein folding dynamics, and hydrogen bonding. Resolution may be enhanced by applying novel polarization configurations of the optical fields which also provide chirality-specific information. The use of pulse shaping coherent control strategies and sensitivity analysis to simplify complex spectra and retrieve and enhance desired features will be demonstrated.



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Präsident 2005/06: Ao.Univ.Prof. Dr. Harald Posch, Institut für Experimentalphysik, Universität Wien