

Fritz-Haber-Institut der Max-Planck-Gesellschaft

Physikalische Chemie — Direktor: Prof. Dr. Martin Wolf



MAX-PLANCK-GESELLSCHAFT

Joint Seminar (PC & MP):

Wednesday, November 6, 2019, at 11:00 a.m.;

— all are invited to meet at around 10:40 for a chat with coffee & cookies —

Prof. Albert Stolow

Canada Research Chair in Molecular Photonics
University of Ottawa,
& Molecular Photonics Group,
National Research Council Canada.

Direct Observation of Nuclear-Driven Electronic Coherences in Molecules

PC Seminar Room G2.06, Building G, Faradayweg 4

M. Wolf & G. Meijer

Abstract:

The direct observation of electronic coherences in molecules and their separation from electronic population dynamics is a long-standing goal.

Electronic coherences can be created by extremely short (attosecond to few-femtosecond) laser pulses. Of interest here, they can also be induced by non-adiabatic nuclear dynamics, such as via rapid passage through a conical intersection. Sophisticated 2D Electronic Spectroscopies in the X-ray domain have been proposed for disentangling electronic population dynamics from coherences in such cases. Here we propose and demonstrate an ultrafast photoelectron imaging approach, based on angular momentum coherences, which completely separates electronic population dynamics from electronic coherences and, to a high degree, further separates rotational from electronic coherences.