Preface: Special Topic on Multidimensional Spectroscopy

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Focus: Phase-resolved nonlinear terahertz spectroscopy—From charge dynamics in solids to molecular excitations in liquids

Thomas Elsaesser, Klaus Reimann, Michael Woerner

Focus: Two-dimensional electron-electron double resonance and molecular motions: The challenge of higher frequencies


Multidimensional infrared spectroscopy reveals the vibrational and solvation dynamics of isoniazid


Ultrafast 2DIR spectroscopy of ferric azide precursors for high-valent iron. Vibrational relaxation, spectral diffusion, and dynamic symmetry breaking

Denis Czurlok, Joel Torres-Alacan, Peter Vöhringer

Impact of environmentally induced fluctuations on quantum mechanically mixed electronic and vibrational pigment states in photosynthetic energy transfer and 2D electronic spectra

Yuta Fujihashi, Graham R. Fleming, Akito Ishizaki

Couplings between hierarchical conformational dynamics from multi-time correlation functions and two-dimensional lifetime spectra: Application to adenylyl kinase

Junichi Ono, Shoji Takada, Shinji Saito

Femtosecond stimulated Raman spectroscopy by six-wave mixing

Brian P. Molek, Zhenkun Guo, Andrew M. Moran

Ultrafast phosphate hydration dynamics in bulk H2O

Rene Costard, Tobias Tyborski, Benjamin P. Fingerhut, Thomas Elsaesser

Molecular dynamics study of two-dimensional sum frequency generation spectra at vapor/water interface

Tatsuya Ishiyama, Akihiro Morita, Taheh Tahara

Dynamics of water, methanol, and ethanol in a room temperature ionic liquid

Patrick L. Kramer, Chiara H. Giammanco, Michael D. Fayer

Femtosecond transient infrared and stimulated Raman spectroscopy shed light on the relaxation mechanisms of photo-excited peridinin

Mariangela Di Donato, Elena Ragnoni, Andrea Lapini, Paolo Foggì, et al.

The separation of vibrational coherence from ground- and excited-electronic states in P3HT film

Yin Song, Christoph Hellmann, Natalie Stingelin, Gregory D. Scholes

On the interplay of the potential energy and dipole moment surfaces in controlling the infrared activity of liquid water

Gregory R. Medders, Francesco Paesani

Room-temperature ballistic energy transport in molecules with repeating units

Natalia I. Rubtsova, Clara M. Nyby, Hong Zhang, Boyu Zhang, et al.

2D attenuated total reflectance infrared spectroscopy reveals ultrafast vibrational dynamics of organic monolayers at metal-liquid interfaces

Jan Philip Kraack, Davide Lotti, Peter Hamn

Coherence and population dynamics of chlorophyll excitations in FCP complex: Two-dimensional spectroscopy study

Vytautas Butkus, Andrius Gelzinis, Ramūnas Augulis, Andrew Gall, et al.

Solvation of fluoro-acetonitrile in water by 2D-IR spectroscopy: A combined experimental-computational study


Ultrafast 2D-IR spectroelectrochemistry of flavin mononucleotide

Youssef El Khoury, Luuk J. G. W. Van Wijleren, Jens Bredenbeck

Vibrational coherence and energy transfer in two-dimensional spectra with the optimized mean-trajectory approximation

Mallory Aleini, Roger F. Loring
Vibrational dynamics of azide-derivatized amino acids studied by nonlinear infrared spectroscopy
Masazuki Okuda, Kaoru Ohta, Keisuke Tomimura

Low frequency 2D Raman-THz spectroscopy of ionic solution: A simulation study
Zhijun Pan, Tianmin Wu, Tan Jin, Yong Liu, et al.

Lineshape analysis of coherent multidimensional optical spectroscopy using incoherent light
Darin J. Ulness, Daniel B. Turner

Analysis of 2D THz–Raman spectroscopy using a non-Markovian Brownian oscillator model with nonlinear system-bath interactions
Tatsushi Ikeda, Hironobu Ito, Yoshitaka Tanimura

Bisexciton formation and exciton coherent coupling in layered GaSe

Linear and third- and fifth-order nonlinear spectroscopies of a charge transfer system coupled to an underdamped vibration
Arend G. Dijkstra, Yoshitaka Tanimura

Distinguishing gramicidin D conformers through two-dimensional infrared spectroscopy of vibrational excitons
Paul Stevenson, Andrei Tokmakoff

Ultrafast vibrational spectroscopy (2D-IR) of CO2 in liquid ammonia: Carbon capture from carbon dioxide’s point of view
Thomas Brinzer, Eric J. Berquist, Zhe Ren, Samrat Dutta, et al.

High resolution coherent three dimensional spectroscopy of NO3
Theresa A. Wells, Angelar K. Muthike, Jessica E. Robinson, Peter C. Chen

Line shape analysis of two-dimensional infrared spectra
Qi Guo, Philip Pagano, Yun-Liang Li, Arnon Kohen, et al.

Probing environment fluctuations by two-dimensional electronic spectroscopy of molecular systems at temperatures below 5 K
Olga Rancova, Ryszard Jankowiak, Darius Abramavicius

Relaxation dynamics and exciton energy transfer in the low-temperature phase of MEH-PPV
Cristina Consani, Federico Koch, Fabian Panzer, Thomas Unger, et al.

Multidimensional characterization of stochastic dynamical systems based on multiple perturbations and measurements
Maksym Kryukov, Shaul Mukamel

2D heterodyne-detected sum frequency generation study on the ultrafast vibrational dynamics of H2O and HOD water at charged interfaces

Energy transfer dynamics in trimers and aggregates of light-harvesting complex II probed by 2D electronic spectroscopy

Ultra-broadband 2D electronic spectroscopy of carotenoid-bacteriochlorophyll interactions in the LH1 complex of a purple bacterium
Marginita Mauri, Julien Réhault, Anne-Marie Carey, Kyrsty Hacking, et al.

Vibronic coupling explains the ultrafast carotenoid-to-bacteriochlorophyll energy transfer in natural and artificial light harvesters

Probing structural features of self-assembled violanthrone-79 using two dimensional infrared spectroscopy
Jenée D. Cyran, Amber T. Krummel

Structure and dynamics of a salt-bridge model system in water and DMSO
S. Lotze, H. J. Bakker

Application of two-dimensional infrared spectroscopy to benchmark models for the amide I band of proteins
Anna S. Bondarenko, Thomas L. C. Jansen

Hydration and vibrational dynamics of betaine (N,N,N-trimethylglycine)
Tianming Wu, Tan Jin, Patrick B. S. Loo, John Mathaga, et al.

Probing polaron dynamics in trapped ions with phase-coherent two-dimensional spectroscopy
Manuel Gessner, Frank Schlawin, Andreas Buchleitner

Extended quantum jump description of vibronic two-dimensional spectroscopy
Julian Albert, Mirjam Falge, Martin Keß, Andreas Buchleitner

Correlating solvent dynamics and chemical reaction rates using binary solvent mixtures and two-dimensional infrared spectroscopy

Quantum process tomography by 2D fluorescence spectroscopy
Leonardo A. Pachón, Andrew H. Marcus, Alain Aspuru-Guzik

Modeling the high-energy electronic state manifold of adenosine: Calibration for nonlinear electronic spectroscopy

The structure of salt bridges between Arg+ and Glu− in peptides investigated with 2D-IR spectroscopy: Evidence for two distinct hydrogen-bond geometries

Coherent (phonon) vs incoherent (current) detection of multidimensional optical signals from single molecules in open junctions
Bijay Kumar Agarwalla, Upendra Harbola, Weijie Hua, Yu Zhang, et al.

Towards quantification of vibronic coupling in photosynthetic antenna complexes

Electron-phonon interactions in MoS2 probed with ultrafast two-dimensional visible/far-infrared spectroscopy
Xunmin Guo, Hailong Chen, Xiewen Wen, Junrong Zheng

Davydov Ansatz as an efficient tool for the simulation of nonlinear optical response of molecular aggregates
Ke-Wel Sun, Maxim F. Gelin, Vladimir Y. Chernyak, Yang Zhao

Dye aggregation identified by vibrational coupling using 2D IR spectroscopy

Hydrogen bond dynamics in bulk alcohols
Keesuke Shinokita, Ana V. Cunha, Thomas L. C. Jansen, Maxim S. Pshenichnikov

Pulse-shaping assisted multidimensional coherent electronic spectroscopy
Yuseff Rodriguez, Franziska Frei, Andrea Cannizzo, Thomas Feurer

Detection of dark states in two-dimensional electronic photon-echo signals via ground-state coherence
Dassia Egorova