CONFERENCE PROGRAM

July 10
18:00 Welcome reception

July 11
9:00 Keynote talk. Graham R. Fleming, *Non-linear and single photon spectroscopies and photosynthetic light harvesting*

9:30 Keynote talk. Rienk van Grondelle, *How charge transfer states control the primary processes of photosynthesis*

10:00 Break

10:30 Invited talk. Akihito Ishizaki, *Effects of dephasing upon quantum dynamical phenomena in condensed phase molecular processes*

10:50 Donatas Zigmantas, *Energy transfer-induced coherence shift mechanism for long-lived coherences in photosynthesis*

11:05 Doran I. G. Bennett, *Vibronic coherence in photosynthesis?*

11:20 David Hutchinson, *Structure in dissipation and dephasing rates and the role of coherence in energy transport in photosynthesis*

11:35 Joachim Seibt, *Treatment of Herzberg-Teller and non-Condon effects in optical spectra with “hierarchical equations of motion” (HEOM)*

11:50 Lunch

13:00 Invited talk. Tomáš Polívka, *Tuning carotenoid excited states by interaction with protein as the main mechanism of non-photochemical quenching in photosynthesis*

13:20 Sergei Kozyrev, *Dark states in quantum photosynthesis*

13:35 Elena Meneghin, *Coherence in carotenoid-to-chlorophyll energy transfer*

13:50 Václav Perlík, *Vibronically mediated excitation transfer in orthogonal and parallel perylene dyads*

14:05 Maxim F. Gelin, *Theory of femtosecond single-molecule spectroscopy: Application to light harvesting complexes*

14:20 Break

15:00 Invited talk. Ryszard Jankowiak, *Impact of single point mutations on the excitonic structure and dynamics in Fenna-Matthews-Olson complex from green sulfur bacterium Chlorobaculum tepidum*

15:20 Julian Adolphs, *Theory of difference fluorescence line narrowing spectroscopy on multi-chromophoric systems: Application to the water-soluble chlorophyll binding protein*
workshop on quantum effects
in biological systems
2018 July 10-13, Vilnius

15:35  André Anda, *Two-dimensional electronic spectroscopy of anharmonic molecular potentials*

15:50  Eglė Bukartė, *Dynamic band-shift signal in two-dimensional electronic spectroscopy*

16:05  Break

16:30  Nicholas Werren, *Non-Markovian dynamics of open quantum systems in a biological context*

16:45  Shmuel Gurvitz, *New approach to noise assistant transport in presence of vibrational degrees of freedom*

17:00  Andrea Mattioni, *Dark state protected energy transfer between nanostructured unit cells*

17:15  Yonatan Dubi, *Environment assisted quantum transport – insight from two simple models*

**July 12**

9:00  **Keynote talk. Shaul Mukamel**, *Multidimensional spectroscopy of molecular complexes with X-ray pulses and quantum light*

9:30  **Keynote talk. Jasper Knoester**, *Spectroscopy and dynamics of excitons in natural and synthetic tubular light-harvesting antennae*

10:00  Break

10:30  **Invited talk. Alex W. Chin**, *Studying light-harvesting models with superconducting circuits*

10:50  Thomas Renger, *Exciton theory of circular dichroism for the refinement of Hamiltonians and structural models of photosynthetic pigment-protein complexes*

11:05  David F. Coker, *First principles model Hamiltonian ensembles for light harvesting and direct calculation of non-linear 2D electronic spectroscopy*

11:20  Andrius Gelzinis, *Simulations of optical spectra of molecular complexes: Applications to photosystem II reaction center*

11:35  Thorsten Hansen, *Coherent spectroscopy of electron transfer*

11:50  Lunch

13:00  **Invited talk. Michael Thorwart**, *Quantum coherence in the dynamics of biomolecular excitons – revisited*

13:20  Yoshitaka Tanimura, *An exciton-coupled electron transfer process controlled by non-Markovian environments*

13:35  Anton Trushechkin, *Extending the projector operator formalism: How to compute coherences in the Förster, modified Redfield, and polaron transformation approaches*

13:50  Raffaele Borrelli, *Dynamics and spectroscopy of molecular systems at finite temperature: A thermo-field dynamics approach*
Brendon W. Lovett, Efficient non-Markovian energy transfer dynamics using time-evolving matrix product operators

Francesco Tacchino, Open quantum system approach to the Q-cycle mechanism of electron and proton energy transport through cellular membranes

Lipeng Chen, Visualization of dissipative wavepacket dynamics at conical intersections

Andrew H. Marcus, Spectroscopic studies of exciton-coupled cyanine dimers (Cy3)2 in double-stranded DNA

Poster session

Conference dinner

July 13

Jürgen Hauer, Vibronic coupling explains the ultrafast carotenoid-bacteriochlorophyll energy transfer rate

Peter J. Hore, Influence of radiofrequency electromagnetic fields on avian magnetoreception

Arvi Freiberg, Phenomenal robustness of photosynthetic excitons

Erling Thyrhaug, Unravelling coherences in the FMO complex

Howe-Siang Tan, The temperature dependence of excitation energy transfer processes in light harvesting complex II

Tjaart Krüger, Reduced excitonic coupling enhances light harvesting in the main photosynthetic antennae of diatoms

František Šanda, Finite pulse effects in 2D electronic spectroscopies

Matthew Fisher

Philip Kurian, Excitonic transport in biomolecular aromatic networks

Enrique Blair, A fully-quantum model for the vibrational theory of olfaction

David Racine, Retinal rod cells are sensitive to the coherence of the incoming stimulating light

Fernando Luis Semião, Quantum dynamics of ion tranlocation in a driven potassium channel

Break
Yuval Kolodny, **Light harvesting in the deep ocean – enhanced energy transfer through photo-acclimation of marine cyanobacteria**

Jevgenij Chmeliov, **Dynamic feedback of the photosystem ii reaction center on photoprotection in plants**

Nir Keren, **Light harvesting dynamics in massive phycobilisome antenna structures of cyanobacteria**

Lev Mourokh, **Proton-pumping complexes of mitochondria membranes: Natural and artificial structures**

Marijonas Tutkus, **Single-molecule fluorescence and FRET microscopy for DNA – protein interaction studies**

Iannis Kominis, **Quantum biometrics**

Erik M. Gauger, **Bio-inspired light-harvesting beyond classical limits**

Stefan Siwiak-Jaszek, **Quantum synchronisation in biologically inspired exciton-vibration dimers**

Ray Lee, **Brain-to-brain entanglement measured by dyadic FMRI**

Thomas Player, **Spin dynamics of Posner’s cluster and implications for a theory of quantum cognition**

Betony Adams, **An open quantum systems approach to the radical pair mechanism in a biological context**

Henry Maguire, **Breakdown of Franck-Condon physics due to non-additive environments**

Andrey Mikhaylov, **A decomposition of weak coupling limit type Lindblad equation and rates of decoherence**

Dominik Orlowski, **Extending driven Liouville von Neumann with electrostatic potential and alternating current**

Dominic Gribben, **Exact quantum dynamics in structured environments**

Francesco Di Maiolo, **Intermolecular energy transfer in real time**

Svajūnas Korsakas, **Application of the Redfield relaxation equation for a time evolution of a simple excitonic system**

Swetapadma Sahoo, **Atomistic modeling of inelastic tunneling through odorant molecules**

Elinor Zerah Harush, **Role of network structure in environment-assisted quantum transport**

Nidhi Pandey, **Graph theoretic unification of vibration and shape theories of olfaction**

Berke Ricketti, **Ultrafast sunlight emulator for quantum biology**

Giuseppe Celardo, **Enhancing the efficiency of light-harvesting devices by breaking of detailed balance.**

Parisa Hosseinezhad, **Localization-delocalization transition in the photosynthetic system**

Davinder Singh, **Role of initial coherence in excitation transfer efficiency from Fenna-Matthews-Olson complex to reaction center core complex**

Ira Mautner, **Investigation of energy transfer mechanisms in photosynthesis using time-resolved spectroscopy**
18. Stefan Knippenberg, *Enhanced lipid phase recognition through combined (non-) linear optical and fluorescence analyses*

19. Marketa Paloncova, *Effect of lipid phase on the fluorescent and non-linear optical properties of membrane probes*

20. Adriana De Mendoza, *Photoprotection assisted by thermal light correlations on bacterial photosynthesis*

21. Mette Lützen Hoff Kjeldsen, *2D optical response of a coupled pair of two level systems*

22. Dominic Rouse, *Photocell optimisation: Dark state protection of excitations in a dimer strongly coupled to vibrational and optical baths*


24. Sayeh Rajabi, *A combined Redfield-Forster theory for biomimetic energy transfer on fluorographene*

25. Tenzin Kunsel, *Temperature dependence of exciton diffusion in linear molecular aggregates*

26. Leonardo Jose Uribe Castano, *Nonlinear optical properties of organized aggregate of porphyrins in lipid bilayers*

27. Animesh Datta, *Quantumness from ultrafast spectroscopy experiments*

28. Vladislav Slama, *First principles calculation of fluorographene optical and excitation transfer properties*

29. Alexander Teretenkov, *High frequency vibrational peaks in pseudomode picture*

30. Alejandro Somoza, *Quantum dynamics of vibronic systems with controlled factorization of the environment*

31. Will Brown, *Vibration-assisted quantum collective effects in light-harvesters*

32. Mantas Jakučionis, *Vibrational damping effects on electronic energy relaxation in molecular aggregates*

33. Vytautas Bubilaitis, *Excited state relaxation in vibronic model for bacterial reaction center*

34. Vytautas Balevičius Jr., *Coherent vs incoherent interactions of lowest-lying chlorophyll and carotenoid excited states in connection with efficient excitation quenching*

35. Mikas Vengris, *Solving the mystery of red tomato color by ultrafast laser spectroscopy*

36. Pavel Malý, *Vibronic effects can decrease trapping effect of low-energy states in photosynthesis*