List of Publications

Peer reviewed journals

[J42] P. Nalbach and M. Schechter  
*Symmetry reduction for tunneling defects due to strong couplings to phonons*  

[J41] Hong-Guang Duan, Moritz Frey, Michael Thorwart, and Peter Nalbach  
*Two-dimensional photon echoes reveal non-Markovian energy transfer in an excitonic dimer*  

[J40] J. Reichert, P. Nalbach, and M. Thorwart  
*Dynamics of a quantum two-state system in a linearly driven quantum bath*  

[J39] Peter Nalbach, Samaneh Javanbakht, Christopher Stahl, and Michael Thorwart  
*Stueckelberg oscillations in a two-state two-path model of a conical intersection*  
(Topical Issue on *Quantum Dynamics: Exploring the Extremes*)

[J38] Hermann Grabert, Peter Nalbach, Joscha Reichert, and Michael Thorwart  
*Nonequilibrium Response of Nanosystems Coupled to Driven Quantum Baths*  

*Exploiting the magnetomechanical interaction for cooling magnetic molecular junctions by spin-polarized currents*  

[J36] Hong-Guang Duan, Arend G. Dijkstra, Peter Nalbach, and Michael Thorwart  
*An efficient tool to calculate two-dimensional optical spectra for photoactive molecular complexes*  

[J35] Hong-Guang Duan, Amy Stevens, Peter Nalbach, Michael Thorwart, Valentyn Prokhorenko, and R.J. Dwayne Miller  
*Two-dimensional electronic spectroscopy of Light Harvesting Complex II at ambient temperature: a joint experimental and theoretical study*  

[J34] P. Nalbach, Smitha Vishveshwara, and Aashish A. Clerk  
*Quantum Kibble-Zurek physics in the presence of spatially-correlated dissipation*  

[J33] C. A. Mujica-Martinez and P. Nalbach  
*On the influence of underdamped vibrations on coherence and energy transfer times in light-harvesting complexes*  
(Special Issue on *Complex quantum systems*)
[J32] Hong-Guang Duan, Peter Nalbach, Valentyn I. Prokhorenko, Shaul Mukamel, and Michael Thorwart
On the nature of oscillations in two-dimensional spectra of excitonically-coupled molecular systems

Dissipative Landau-Zener quantum dynamics with transversal and longitudinal noise

Vibronic speed-up of the excitation energy transfer in the Fenna-Matthews-Olson complex

[J29] N. Mann, P. Nalbach, S. Mukamel, and M. Thorwart
Probing chirality fluctuations in molecules by nonlinear optical spectroscopy

[J28] P. Nalbach
Adiabatic-Markovian Bath Dynamics at avoided crossings

Cooling a magnetic nanoisland by spin-polarized currents
highlighted in Physics
Katherine Kornei, Synopsis: Spin Currents Cool a Quantum Dot, Physics August 14, 2014
highlighted in Popular Mechanics

Hydration shell effects in the relaxation dynamics of photoexcited Fe-II complexes in water

Quantification of non-Markovian effects in the Fenna-Matthews-Olson complex

Nonequilibrium quantum fluctuation relations for harmonic systems in nonthermal environments

Coherent control of molecular charge-qubits based on organic π-conjugated copolymers

[J22] P. Nalbach, J. Knörzer, and S. Ludwig
Nonequilibrium Landau-Zener-Stueckelberg spectroscopy in a double quantum dot
[J21] P. Nalbach and M. Thorwart
Enhanced quantum efficiency of light-harvesting in a biomolecular quantum 'steam engine'

[J20] P. Nalbach and M. Thorwart
Crossover from coherent to incoherent quantum dynamics due to purely dephasing Sub-Ohmic fluctuations

Noise-induced Förster resonant energy transfer between orthogonal dipoles in photoexcited molecules

[J18] P. Nalbach and M. Thorwart
The role of discrete molecular modes in the coherent exciton dynamics in FMO
(Special Issue on Loss of Coherence and Memory Effects in Quantum Dynamics)

Exciton dynamics and Quantumness of energy transfer in the Fenna-Matthews-Olson complex

Iterative path-integral algorithm versus cumulant time-nonlocal master equation approach for the dissipative biomolecular exciton transport

Quantum coherent biomolecular energy transfer with spatially correlated fluctuations
(Focus issues on Quantum Effects and Noise in Biomolecules)

[J14] P. Nalbach and M. Thorwart
Competition between relaxation and external driving in the dissipative Landau-Zener problem
(Spezial Issue on Stochastic processes in Physics and Chemistry dedicated to the 60th birthday of Peter Hänggi)

Multiphonon transitions in the biomolecular energy transfer dynamics

[J12] P. Nalbach and M. Thorwart
Ultraslow quantum dynamics in a sub-Ohmic heat bath

Landau Zener transitions in a dissipative environment: Numerically exact results

Enhanced quantum entanglement in the non-Markovian dynamics of biomolecular excitons

[J9] P. Nalbach

Microscopic structure of tunneling systems in glasses


Non-equilibrium dynamics of interacting tunneling states in glasses

[J7] P. Nalbach and W. Harrison

Particle tunneling through a polarizable insulator


Dynamics of the Destruction and Rebuilding of a Dipole Gap in glasses


Memory Effects in Amorphous Solids below 20 mK

see supplementary material: P. Nalbach, arXiv:0301003.

[J4] P. Nalbach

Weakly coupled tunneling systems in mixed crystals

[J3] P. Nalbach, O. Terzidis, K.A. Topp, and A. Würger

Elastic response of [111]-tunneling impurities

[J2] B. Thimmel, P. Nalbach, and O. Terzidis

Rotating wave approximation: systematic expansion and application to coupled spin pairs

[J1] P. Nalbach and O. Terzidis

Cubic defects: comparing the eight-state system with its two-level approximation
Conference Proceedings

[C4] P. Nalbach
Coherent or hopping like energy transfer in the chlorosome?

[C3] C. Mujica-Martinez, P. Nalbach and M. Thorwart
Nonequilibrium Quantum Dynamics of Biomolecular Excitons

[C2] P. Nalbach and M. Thorwart, Quantum Coherence in Photosynthetic Exciton Dynamics,

[C1] P. Nalbach
Dephasing of interacting tunneling systems

Book contributions

[B2] P. Nalbach
Ultrafast Exciton Dynamics in Correlated Environments
as Chapter 7 in Ultrafast Dynamics at the Nanoscale – Biomolecules and Supramolecular Assemblies, Edited by I. Burghardt and S. Haacke, Pan Stanford Publishing 2017

[B1] P. Nalbach and M. Thorwart
Quantum coherence and entanglement in photosynthetic light-harvesting complexes

Theses

[T3] P. Nalbach, Nonequilibrium Quantum Dynamics in Correlated Environments
Habilitation, Universität Hamburg, Fachbereich Physik, April 2013

[T2] P. Nalbach, Dynamik von Tunneldefekten – Der [111]- Defekt

[T1] P. Nalbach, Tunnelsysteme in kubischer Symmetrie
Diplomarbeit, Ruprecht-Karls Universität Heidelberg, Fakultät für Physik und Astronomie, September 1996