PERSONAL INFORMATION

Place and date of birth:	Greenfield Park, Canada | March 24, 1977
Nationality:	Canadian
Civil status:	Married, 2 children (7+7 months paternity leave)

Affiliation:
Institut für Chemie und Biochemie
Freie Universität Berlin
Takustraße 3, D-14195 Berlin (Germany)
Email: jc.tremblay@fu-berlin.de
Tel.: +49 30 838 58150

EDUCATION

Jun. 2007	**Ph.D. Theoretical Chemistry**, University of Montreal, Canada Thesis:*"Application de la mécanique quantique à la résolution de problèmes de spectroscopie: développement de méthodes pour le calcul de propriétés d'états métastables"* Advisor: Prof. Dr. Tucker Carrington Jr.
Sept. 1999 – Apr. 2002	**B. Sc. Chemistry**, University of Montreal, Canada
Jun. 1998 – May 1999	**Free studies in science**, Ahuntsic College, Montreal, Canada
Sept. 1995 – Dec. 1997	**College diploma in Music**, Marie-Victorin College, Montreal, Canada
Sept. 1994 – May 1995	**Free studies in humanities**, Edouard-Montpetit College, Longueuil, Canada

PROFESSIONAL EXPERIENCE

Nov. 2012 – present	**Emmy-Noether Junior Group Leader / Habilitand** Institute of Chemistry and Biochemistry, Freie Universität Berlin, Germany
Jan. 2010 – Oct. 2012	**Reseach assistant** Group of Prof. P. Saalfrank, Institute of Chemistry, Universität Potsdam, Germany
Jul. 2007 – Dec. 2009	**Postdoctoral researcher** Group of Prof. P. Saalfrank, Institute of Chemistry, Universität Potsdam, Germany
May 2002 – Jun. 2007	**Ph.D. student** Group of Prof. T. Carrington Jr., Chemistry Department, University of Montreal, Canada
Mar. 2005 – Aug. 2005	**Scientific visit** Group of Prof. M. Kaupp, Institute of Inorganic Chemistry, University of Würzburg, Germany
Mar. 2001 – Aug. 2001	**Research intership** Group of Prof. C. Reber, Chemistry Department, University of Montreal, Canada

PRIZES AND AWARDS

2012	Emmy-Noether fellowship of the Deutsche Forschungsgemeinschaft
2007	FQRNT Postdoctoral fellowship – Fonds Québécois de la Recherche sur la Nature et les Technologies
2007	Ph.D. with honorary mention (top 5%)
2006	FQRNT Ph.D. scholarship
2005	Prize of the Fondation Marc-Bourgie
2005	Faculté des Études Supérieures – Ph.D. Prize
2004	NSERC Ph.D. scholarship – National Science and Engineering Research Council
2002	NSERC Master scholarship
2002	Prize of the Fondation Marc-Bourgie
2002	Canadian Society for Chemistry Silver Medal
2002	Hypercube Prize
2002	Canadian Society for Chemistry Silver Medal
2002	Society of Chemical Industry Student Merit Award
2002	Roger-Barré Prize
2001	Fondation Lucien-Piché Prize
2001	Bourse de la doyenne, Université de Montréal
2001	NSERC Undergraduate Student Research Award

TEACHING EXPERIENCE

- Quantum Reaction Dynamics, Freie Universität Berlin (WiSe 2016-17)
  – Graduate level, 2SWS lecture (English)
- Physical Chemistry: Atombau und chemische Bindung, Freie Universität Berlin (SoSe 2016)
  – Undergraduate level, 4SWS lecture (German)
- Physical Chemistry: Atombau und chemische Bindung, Freie Universität Berlin (SoSe 2015)
  – Undergraduate level, 4SWS lecture (German)
- Quantum Reaction Dynamics, Freie Universität Berlin (WiSe 2014-15)
  – Graduate level, 2SWS lecture (English)
- Quantum Reaction Dynamics, Freie Universität Berlin (WiSe 2013-14)
  – Graduate level, 2SWS lecture (English)
- Quantum Chemistry, Freie Universität Berlin (SoSe 2013)
  – Graduate level, 4SWS lecture (English)
- Mathematics: complement to Quantum Mechanics, Universität Potsdam (SoSe 2012)
  – Undergraduate level, 2SWS lecture + 2SWS tutorial (German)
- Mathematics: complement to Quantum Mechanics, Universität Potsdam (SoSe 2011)
  – Undergraduate level, 2SWS lecture + 2SWS tutorial (German)
- Mathematics: complement to Quantum Mechanics, Universität Potsdam (SoSe 2010)
  – Undergraduate level, 2SWS lecture + 2SWS tutorial (German)
- Statistical thermodynamics and kinetics, Université de Montréal (WiSe 2006)
  – Undergraduate level, 2SWS tutorial (French)
- Spectroscopy and symmetry, Université de Montréal (WiSe 2004)
  – Undergraduate level, 2SWS tutorial (French)
- Introduction to Quantum Mechanics, Université de Montréal (WiSe 2002)
  – Undergraduate level, 2SWS tutorial (French)

STUDENT SUPERVISION

Ph.D. Thesis

- ChunMei Liu, 2016-
  "Laser control of symmetry restauration"
- Tobias Serwatka, 2016-
  "Non-adiabatic quantum dynamics of diatomic molecules at metal surfaces"
- Kai Töpfer, 2015-
  "Laser-induced catalytic oxidation of CO at gold clusters deposited on magnesium oxide"
- Gunter Hermann, 2014-
  "Laser-driven electron dynamics in nanostructured materials"
- Vincent Pohl, 2013-
  "Dynamical switching of adsorbate on graphene ribbons via configurational change"

Master Thesis

- Frederik Bader, 2017
  "First-principle investigations of a diarylethene molecular switch on Ag(111)"
- Tobias Serwatka, 2016
  "First-principle determination of an accurate high-dimensional potential energy surface for investigating NO scattering from Au(111)"
- Kai Töpfer, 2014-15
  "Mechanistic investigation of CO oxidation on gold clusters deposited on defective magnesium oxide surfaces"
- Jenny Zieschang, 2013-14
  "Time-resolved photoelectron spectra of vibrating gold clusters"
- Gunter Hermann, 2013-14
  "Laser-driven electron dynamics of a Germanium/Silicon core-shell system"
- Selina Schimka, 2011-12
  "Experimental and theoretical characterization of CdSe quantum dots"

Bachelor Thesis

- Nina Rupprecht, 2015
  "Vibrational analysis of Nanoputians"
- Sophia Heiden, 2012
  "Theoretical investigation of the electronic structure of hydrogen on graphene"

INVITED TALKS AND SEMINARS

I1 Dynamics of Energy Transfer on the Nanoscale, Helmholtz-Zentrum Berlin (Germany) Sept. 2017.

I2 CECAM Workshop on challenges in reaction dynamics of gas-surface interactions and methodological advances in dissipative and non-adiabatic processes, Albi (France) Jun. 2017.

I3 International Meeting on Atomic and Molecular Physics and Chemistry, Toruń (Poland) Jun. 2017.

I4 2^{nd} German-Chinese Young Scientist Symposium on Structures & Dynamics at Surfaces, Göttingen (Germany) May 2017.

I5 Group of Prof. M. Scheffler, Fritz-Haber Institut, Berlin (Germany) Apr. 2017.

I6 Photon School, Helmholtz-Zentrum Berlin (Germany) Mar. 2017.

I7 Group of Prof. E.K.U. Groß, Max-Planck-Institut für Mikrostrukturphysik, Halle (Germany) Feb. 2016.

I8 Group of Prof. O.Kühn, Universität Rostock, Rostock (Germany) Jan. 2016.

I9 1st German-Chinese Young Scientist Symposium on Structures & Dynamics at Surfaces, Peking (China) Nov. 2015.
I10 Workshop on Atomic and Molecular Physics WAMP 3, Varadero (Cuba) Jun. 2015.
I11 Workshop on Methods and Algorithms in Electronic-Structure Theory, Ringberg Castle (Germany) Jun. 2015.
I12 Group of Prof. R. Santra, Center for Free Electron Laser Science, Hamburg (Germany) Mar. 2015.
I13 Group of Prof. R. Marquardt, University of Strasbourg (France) May 2014.
I14 Workshop on Quantum Molecular Dynamics, BIRS, Banff (Canada) Apr. 2013.
I15 Group of Prof. S. Mahapatra, University of Hyderabad (India) Feb. 2013.
I16 ESDMC 2013, IACS, Kolkata (India) Feb. 2013.
I17 Emmy-Noether Meeting, Universität Kiel (Germany) Feb. 2013.
I18 Group of Prof. A. Dreuw, Interdisciplinary Center for Scientific Computing, Universität Heidelberg (Germany) Jan. 2013.
I19 PCTC Kolloquium, Freie Universität Berlin (Germany) Dec. 2012.
I20 XVIIIth Symposium on Atomic, Cluster and Surface Physics, Alpe d'Huez (France) Jan. 2012.
I21 Group of Prof. A. Wodtke, Max-Planck Institute for Biophysical Chemistry, Göttingen (Germany), Nov. 2011.
I22 ARCHES plenary meeting, Alénya (France) Oct. 2011.
I23 Group of Prof. M. Kaupp Technische Universität Berlin (Germany) Jun. 2011.
I24 Group of Prof. I. Burghardt, Universität Johannes Wolfgang Goethe, Frankfurt (Germany) May 2011.
I25 CECAM Workshop on adiabatic and non-adiabatic methods in quantum dynamics, Lausanne (Switzerland) Nov. 2010.
I26 Theoretical Chemistry group of Prof. M. Scheffler, Fritz-Haber Institut, Berlin (Germany) Oct. 2010.
I27 SFB 450 meeting, Fritz-Haber Institut, Berlin (Germany) Jun. 2009.
I28 Group of Prof. T. Carrington Jr., Queen's University, Kingston (Canada) Nov. 2008.
I29 SFB 450 meeting, Universität Potsdam, Potsdam (Germany) Feb. 2008.

ACADEMIC COLLABORATIONS

- Dr. María Blanco-Rey, Donostia San Sebastian (Spain) – Simulation of STM experiments
- Prof. Irene Burghardt, Uni Frankfurt (Germany) – Stochastic multi-configurational Gaussians
- PD. Dr. Tillmann Klamroth, Uni Potsdam (Germany) – TDCI approach to electron dynamics
- Prof. Jörn Manz, Freie Universität Berlin (Germany) – Laser control of charge migration
- Dr. Takashi Kumagai, Fritz Haber Institute (Germany) – Simulation of tautomerization experiments
- Prof. Roberto Marquardt, Uni Strasbourg (France) – Scattering from metal surfaces
- Prof. Aliezer Martínez Mesa, Uni Havana (Cuba) – Semi-classical vibrational hydrodynamics
- Prof. Peter Saalfrank, Uni Potsdam (Germany) – Scattering dynamics at metallic surfaces
- Prof. Llinersy Uranga Piña, Uni Havana (Cuba) – Intramolecular vibrational energy redistribution
- Prof. Yonggang Yang, Shanxi University (China) – Visualization of charge migration

LANGUAGE SKILLS

- French - native
- English - fluent (oral and written)
- German - fluent (oral and written)

RESEARCH FUNDINGS

2016	Supercomputer computational time allocation Norddeutscher Verbund für Hoch- und Höchstleistungsrechnen, ZIB Allocation: 660'000 CPU-hours (equivalent to 14'300€)
2012 – 2018	Emmy-Noether fellowship Deutsche Forschungsgemeinschaft Fund: 1'181'700€
2015	Alumni Programm Center for International Cooperation, Freie Universität Berlin Fund: 5'000€
2014 – 2015	Grant to Support the Initiation of an International Cooperation Deutsche Forschungsgemeinschaft Fund: 21'620€
2014	Guest scientist Center for International Cooperation, Freie Universität Berlin Fund: 5'000€
2013	Initiation of an International Collaboration Center for International Cooperation, Freie Universität Berlin Fund: 5'000€
2007 – 2009	Postdoctoral fellowship Fonds Québécois de la Recherche sur la Nature et les Technologies Fund: 60'000$
2004 – 2007	Ph.D. scholarships Fund: 60'000$ – National Science and Engineering Research Council 30'000$ – Faculté des Études Supérieures 19'000$ – Fonds Québécois de la Recherche sur la Nature et les Technologies 10'000$ – Fondation Marc-Bourgie
2005	Internship scholarship Fonds Québécois de la Recherche sur la Nature et les Technologies Fund: 8'000$
2002 – 2004	Master scholarships Fund: 15'000$ – National Science and Engineering Research Council 5'000$ – Fondation Marc-Bourgie

PEER-REVIEWED ARTICLES

A1 V. Pohl, G. Hermann, and J.C. Tremblay "An Open-Source Framework for Analyzing N-Electron Dynamics: I. Multi-Determinantal Wave Functions", J. Comput. Chem., in press (2017).

A2 D. Novko, M. Blanco-Rey , and J.C. Tremblay "Intermode Coupling Drives the Irreversible Tautomerization in Porphycene on Copper(111) Induced by Scanning Tunnelling Microscopy", J. Phys. Chem. Lett. **8**,1053 (2017).

A3 G. Hermann, C. Liu, J. Manz, B. Paulus, V. Pohl, and J.C. Tremblay Attosecond angular flux of partial charges on the carbon atoms of benzene in non-aromatic excited state, Chem. Phys. Lett. in press, (2017).

A4 D. Jia, J. Manz, B. Paulus, V. Pohl, J.C. Tremblay, and Y. Yang Quantum Control of Electronic Fluxes During Adiabatic Attosecond Charge Migration in Degenerate Superposition States of Benzene, Chem. Phys. **482**, 146 (2017).

A5 D. Novko, J.C. Tremblay, and M. Blanco-Rey "On the Tautomerisation of Porphycene on Copper(111): Finding the Subtle Balance Between van der Waals Interactions and Hybridisation", J. Chem. Phys. **145**, 244701 (2016).

A6 V. Pohl and J.C. Tremblay "Field-Induced Conformational Change in a Single-Molecule-Graphene-Nanoribbon Junction: The Effect of Vibrational Energy Redistribution", J. Phys. Chem. C **120**, 28808 (2016).

A7 G. Hermann and J.C. Tremblay "Ultrafast Photoelectron Migration in Dye-Sensitized Solar Cells: Influence of the Binding Mode and Many-Body Interactions", J. Chem. Phys. **145**, 174704 (2016).

A8 K. Töpfer and J.C. Tremblay *"How Surface Reparation Prevents Catalytic CO Oxidation on Atomic Gold at Defective MgO(001)"*, Phys. Chem. Chem. Phys. **18**, 18590 (2016).

A9 S. Klinkusch and J.C. Tremblay *"Resolution-of-Identity Stochastic Time-Dependent Configuration Interaction for Dissipative Electron Dynamics in Strong Fields"*, J. Chem. Phys. **144**, 184108 (2016).

A10 G. Hermann, C. Liu, J. Manz, B. Paulus, V. Pohl, and J.C. Tremblay *"Multi-directional Angular Electron Flux During Adiabatic Attosecond Charge Migration in Excited Benzene"*, J. Phys. Chem. A **120**, 5360 (2016).

A11 G. Hermann, V. Pohl, J.C. Tremblay, B. Paulus, H.-C. Hege, and A. Schild *"ORBKIT - A Modular Python Toolbox for Cross-Platform Post-Processing of Quantum Chemical Wavefunction Data"*, J. Comput. Chem. **37**, 1511 (2016).

A12 L. Cruz-Rodríguez, J.C. Tremblay, A. Martínez Mesa, and L. Uranga Piña *"A Chebychev Quantum Trajectory Approach to Ultrafast Wave Packet Dynamics"*, Comp. Theo. Chem. **1078**, 104 (2016).

A13 V. Pohl and J.C. Tremblay *"Adiabatic Electronic Flux Density: A Born-Oppenheimer Broken Symmetry Ansatz"*, Phys. Rev. A **93**, 012504 (2016).

A14 G. Hermann and J.C. Tremblay *"Laser-Driven Hole Trapping in a Ge/Si Core-Shell Nano-crystal: An Atomistic Configuration Interaction Perspective"*, J. Phys. Chem. C **119**, 25606 (2015).

A15 T. Gómez, G. Hermann, X. Zárate, J.F. Pérez-Torres, and J.C. Tremblay *"Imaging the Ultrafast Electron Transfer in Alizarine-TiO_2"*, Molecules **20**, 13830 (2015).

A16 J.C. Tremblay and M. Blanco-Rey *"Manipulating Interfacial Hydrogens at Palladium via STM"*, Phys. Chem. Chem. Phys. **17**, 13973 (2015).

A17 M. Blanco-Rey and J.C. Tremblay *"Diffusion of Hydrogen Interstitials in the Near-Surface Region of Pd(111) under the Influence of Surface Coverage and External Static Electric Fields"*, J. Chem. Phys. **142**, 154704 (2015).

A18 G. Füchsel, J.C. Tremblay, and P. Saalfrank *"A Six-Dimensional Potential Energy Surface for Ru(0001)(2x2):CO"*, J. Chem. Phys. **141**, 094704 (2014).

A19 L. Uranga-Piña and J.C. Tremblay *"Relaxation Dynamics in Quantum Dissipative Systems: The Mi-*

croscopic Effect of Intramolecular Vibrational Energy Redistribution", J. Chem. Phys. **141**, 074703 (2014).

A20 L. Uranga-Piña and J.C. Tremblay *"Intramolecular Vibrational Energy Redistribution in the Relaxation Dynamics of Two CO on Cu(100)"*, Rev. Cub. Phys. **31**, 41 (2014).

A21 J.C. Tremblay *"A Unifying Model for Non-Adiabatic Coupling at Metallic Surfaces Beyond the Local Harmonic Approximation: From Vibrational Relaxation to STM-Driven Transitions"*, J. Chem. Phys. **138**, 244106 (2013).

A22 G. Füchsel, J.C. Tremblay, T. Klamroth, and P. Saalfrank *"Quantum Dynamical Simulations of the Femtosecond Laser Induced Ultrafast Desorption of H_2 and D_2 from Ru(0001)"*, ChemPhysChem **14**, 1471 (2013).

A23 J.C. Tremblay *"Laser-Driven Quantum Dynamics in Dissipative Media"*, Bunsen-Magazin **6**, 290 (2013).

A24 G. Füchsel, J.C. Tremblay, T. Klamroth, and P. Saalfrank *"Concept of a Single Temperature for Highly Nonequilibrium Laser-Induced Hydrogen Desorption from a Ruthenium Surface"*, Phys. Rev. Lett. **109**, 098303 (2012).

A25 J.C. Tremblay, G. Füchsel, and P. Saalfrank *"Excitation, Relaxation, and Quantum Diffusion of CO on Copper"*, Phys. Rev. B **86**, 045438 (2012).

A26 G. Füchsel, J.C. Tremblay, T. Klamroth, and P. Saalfrank *"Selective Vibrational Excitation in Dissipative Environments: Studies of the Vibrational Motion of H_2 and D_2 on Ru(0001)"*, Isr. J. Chem. **52**, 438 (2012).

A27 J.C. Tremblay, S. Monturet, and P. Saalfrank *"The Effects of Electron-Hole Pair Coupling on the Infrared Laser-Controlled Vibrational Excitation of NO on Au(111)"*, J. Phys. Chem. A **115**, 10698 (2011).

A28 J.C. Tremblay *"Laser Control of Molecular Excitations in Stochastic Dissipative Media"*, J. Chem. Phys. **134**, 174111 (2011).

A29 J.C. Tremblay, S. Klinkusch, T. Klamroth, and P. Saalfrank *"Dissipative Many-Electron Dynamics of Ionizing Systems"*, J. Chem. Phys. **134**, 044311 (2011).

A30 G. Füchsel, T. Klamroth, J.C. Tremblay, and P. Saalfrank *"Stochastic Approach to Laser-Induced Ultrafast Dynamics: The Desorption of H_2/D_2 from Ru(0001)"*, Phys. Chem. Chem. Phys. **12**, 14082 (2010).

A31 J.C. Tremblay, P. Krause, T. Klamroth and P. Saalfrank *"The Effect of Energy and Phase Relaxation on Dynamic Polarizability Calculations"*, Phys. Rev. A **81**, 063420 (2010).

A32 J.C. Tremblay, S. Monturet and P. Saalfrank *"Electronic Damping of Adsorbate Vibrations at Metallic Surfaces"*, Phys. Rev. B **81**, 125408 (2010).

A33 R. Marquardt, F. Cuvelier, R.A. Olsen, E.J. Baerends, J.C. Tremblay and P. Saalfrank *"A New Analytical Potential Energy Surface for the Adsorption System CO/Cu(100)"*, J. Chem. Phys. **132**, 074108 (2010).

A34 J.C. Tremblay and P. Saalfrank *"Selective Subsurface Absorption of Hydrogen in Palladium using Laser Distillation"*, J. Chem. Phys. **131**, 084716 (2009).

A35 J.C. Tremblay and P. Saalfrank *"Guided Locally Optimal Control of Quantum Dynamics in Dissipative Environments"*, Phys. Rev. A **78**, 063408 (2008).

A36 J.C. Tremblay, T. Klamroth and P. Saalfrank *"Time-Dependent Configuration-Interaction Calculations of Laser-Driven Dynamics in Presence of Dissipation"*, J. Chem. Phys. **129**, 084302 (2008).

A37 J.C. Tremblay, S. Beyvers and P. Saalfrank *"Selective Infrared Excitation of CO on Cu(100) in Many Dimensions via Optimal Control Theory"*, J. Chem. Phys. **128**, 194709 (2008).

A38 J.C. Tremblay and T. Carrington Jr. *"A Refined Unsymmetric Lanczos Eigensolver for Computing Accurate Eigentriplets of a Real Unsymmetric Matrix"*, Electronic Transactions on Numerical Analysis **28**, 95 (2007).

A39 J.C. Tremblay and T. Carrington Jr. *"Calculating Vibrational Energies and Wave Functions of Vinylidene using a Contracted Basis with a Locally Reorthogonalized Coupled Two-Term Lanczos Eigensolver"*, J. Chem. Phys. **125**, 094311 (2006).

A40 R. Reviakine, A.V. Arbuznikov, J.C. Tremblay, C. Remenyi, O.L. Malkina, V.G. Malkin and M. Kaupp *"Calculation of Zero-Field Splitting Parameters. Comparison of a Two-Component Non-Collinear Density Functional Method and a One-Component Perturbational Approach"*, J. Chem. Phys. **125**, 054110 (2006).

A41 J.C. Tremblay and T. Carrington Jr. *"Computing Resonance Energies, Widths, and Wave Functions using a Lanczos Method in Real Arithmetic"* , J. Chem. Phys. **122**, 244107 (2005).

A42 J.C. Tremblay and T. Carrington Jr. *"Using Preconditioned Adaptive Step Size Runge-Kutta Methods for Solving the Time-Dependent Schrödinger Equation"*, J. Chem. Phys. **121**, 11535 (2004).

A43 R. Beaulac, J.C. Tremblay, G. Bussière and C. Reber *"Application of Near-Infrared Luminescence Spectroscopy to Vanadium(III) Complexes. Characterization of their Electronic Ground State"*, Can. J. Anal. Sci. Spect. **46**, 152 (2001).

BOOK CHAPTERS

B1 J.C. Tremblay "Vibrational Dynamics at Metallic Surfaces", in: Specialist Periodical Reports: Chemical Modelling: Applications and Theory, Vol. 12, Publisher: Royal Society for Chemistry, DOI: 10.1039/9781782622703.

B2 P. Saalfrank, G. Füchsel, S. Monturet, J.C. Tremblay, and T. Klamroth "Theory of Non-Adiabatic Molecular Dynamics at Surfaces : Laser Induced Processes", in: Dynamics of gas/surface interactions, atomic level understanding of scattering processes at surfaces, Springer Series in Surface Science, Publisher: Springer, ISBN: 978-3-642-32954-8.

MANUSCRIPTS IN PREPARATION

P1 G. Hermann, V. Pohl, and J.C. Tremblay *"An Open-Source Framework for Analyzing N-Electron Dynamics: II. Hybrid Density Functional Theory/Configuration Interaction Methodology"*.

P2 G. Hermann and J.C. Tremblay *"Ultrafast Charge Transfer in Pyridinium Derivatives"*.

P3 J.C. Tremblay, L. Cruz-Rodríguez, A. Martínez Mesa, and L. Uranga Piña *"High Dimensional Semiclassical Vibrational Hydrodynamics"*.

P4 K. Töpfer and J.C. Tremblay *"First-principle investigations of the interaction between* CO*,* O_2*, and atomic* {Cu, Ag, Au} *impurities on defect-free* MgO(001) *surfaces"*

P5 V. Pohl and J.C. Tremblay *"Electronic Current Dynamics Through a Single-Molecule-Graphene-Nanoribbon Junction"*

Invited talks

I1 *"Laser control of charge transfer in double quantum dots from an atomistic configuration interaction perspective"*. Dynamics of Energy Transfer on the Nanoscale, Helmholtz-Zentrum Berlin (Germany) September 25-27, 2017.

I2 *"Non-Adiabatic Dynamics at Metallic Surfaces: Revisiting the NO/Au(111) Puzzle"*. CECAM Workshop on challenges in reaction dynamics of gas-surface interactions and methodological advances in dissipative and non-adiabatic processes, Albi (France) June 26-29, 2017.

I3 *"Imaging ultrafast correlated electron dynamics in molecules and nanostructures"*. International Meeting on Atomic and Molecular Physics and Chemistry, Toruń (Poland) June 19-22, 2017.

I4 *"Non-adiabaticity and scattering from metal surfaces: a quantum dynamical perspective"*. The 2$^{\mathrm{nd}}$ German-Chinese Young Scientist Symposium on Structures & Dynamics at Surfaces, Göttingen (Germany) May 28-31, 2017.

I5 *"Manipulating hydrogens at metallic surfaces via scanning tunnelling microscopy"*. Fritz-Haber Institut, Berlin (Germany) April 6, 2017.

I6 *"Ultrafast Electron Dynamics in Strong Laser Fields: Insights from Wave Function Methods"*. Photon School, Helmholtz Center, Berlin (Germany) March 18, 2017.

I7 *"Can we cheat the Born-Oppenheimer approximation? A broken-symmetry approach to the adiabatic current density"*. Max-Planck-Institut für Mikrostrukturphysik, Halle (Germany) February 3, 2016.

I8 *"Ultrafast electron dynamics in nanostructures from an atomistic configuration interaction perspective"*. Universität Rostock, Rostock (Germany) January 19, 2016.

I9 *"Chemical processes at nanostructured surfaces: a theoretical perspective"*. The 1$^{\mathrm{st}}$ German-Chinese Young Scientist Symposium on Structures & Dynamics at Surfaces, Peking (China) November 6-9, 2015.

I10 *"Configuration Interaction Methods for Investigating Ultrafast Electron Dynamics in Nanostructures"*. WAMP3, Varadero (Cuba) June 29-July 3, 2015.

I11 *"Configuration Interaction Approach to Ultrafast Electron Dynamics"*. Workshop on Methods and Algorithms in Electronic-Structure Theory, Ringberg Castle (Germany) June 3-6, 2015.

I12 *"Ultrafast Electron Dynamics in Nanostructures"*. Center for Free Electron Laser Science, Hamburg (Germany) March 11, 2015.

I13 *"Some considerations on vibrations at metallic surfaces"*. University of Strasbourg (France) May 28, 2014.

I14 *"Computing vibrational states of CO on metal substrates"*. Workshop on Quantum Molecular Dynamics, BIRS, Banff (Canada) April 28- May 3, 2013.

I15 *"Controlling the dynamics of quantum dissipative systems"*. University of Hyderabad (India) February 23, 2013.

I16 *"A unifying model for non-adiabatic coupling at metallic surfaces beyond the local harmonic approximation: from vibrational relaxation to STM-driven transitions"*. ESDMC 2013, IACS, Kolkata (India) February 17-20, 2013.

I17 *"Theoretische Modellierung chemischer Reaktionen in dissipativen Umgebungen"*. Emmy-Noether Meeting, Universität Kiel (Germany) February 9, 2013.

I18 *"Laser control of dissipative electron dynamics: application to model molecular systems"*. Interdisciplinary Center for Scientific Computing, University of Heidelberg (Germany) January 31, 2013.

I19 *"A quantum mechanical journey in various hostile environments: Theoretical perspectives on the laser control in dissipative media"*. PCTC Kolloquium, Freie Universität Berlin (Germany) December 12, 2012.

I20 *"Don't forget friction: theoretical perspectives on the laser control of adsorbate vibrations at metallic surfaces"*. XVIIIth Symposium on Atomic, Cluster and Surface Physics, Alpe d'Huez (France) January 22-27, 2012.

I21 *"Non-adiabatic dynamics at metallic surfaces: Is there still hope for electronic friction theory?"* Max-Planck Institute for Biophysical Chemistry, Department of Dynamics at Surfaces, Göttingen (Germany), November 24, 2011.

I22 *"Laser distillation as a tool to alleviate the effects of dissipation: the subsurface absorption of hydrogen in palladium"*. ARCHES plenary meeting, Domaine du Mas Blanc, Alénya (France) October 3-6, 2011.

I23 *"Laser control of ultrafast dissipative quantum electron dynamics"*. Technische Universität Berlin, Berlin (Germany) June 6, 2011.

I24 *"Dissipative electron dynamics and laser control"*. Universität Johannes Wolfgang Goethe, Frankfurt am Main (Germany) May 23, 2011.

I25 *"Laser control of molecular excitations in stochastic dissipative media"*. CECAM Workshop on adiabatic and non-adiabatic methods in quantum dynamics, Lausanne (Switzerland) November 1-3, 2010.

I26 *"Dissipative vibrational dynamics of adsorbates at metallic surfaces"*. Fritz-Haber Institut, Berlin (Germany) October 28, 2010.

I27 *"Selective subsurface absorption of hydrogen in palladium using laser distillation"*. SFB 450 meeting, Fritz-Haber Institut, Berlin (Germany) June 2, 2009.

I28 *"Control of laser-driven electron dynamics in dissipative environments"*. Queen's University, Kingston (Canada) November 13, 2008.

I29 *"Selective infrared excitation of CO on Cu(100) in many dimensions via Optimal Control Theory"*. SFB 450 meeting, Universität Potsdam, Potsdam (Germany) February 12, 2008.

Contributed talks

C1 *"Can we cheat the Born-Oppenheimer approximation?"*. High-Dimensional Quantum Dynamics, Rostock (Germany) August 31 - September 3, 2016.

C2 *"The effect of dimensionality on non-adiabatic dynamics at metallic surfaces: the case of NO on Au(111)"*. 3rd International Conference on Scattering of Atoms and Molecules from Surfaces, University of Bergen (Norway) August 23-26, 2016.

C3 *"Laser-Driven Electron Dynamics of a Germanium/Silicon Core-Shell System"*. CECAM Workshop on Electron Dynamics on Surfaces and Nanostructures, Zaragoza (Spain) November 5-7, 2014.

C4 *"Manipulating Subsurface Hydrides in Palladium via Scanning Tunnelling Microscopy"*. 50. Symposium für Theoretische Chemie, Vienna (Austria) September 14-18, 2014.

C5 *"The effects of electron-hole pair coupling on the infrared laser-controlled vibrational excitation of NO on Au(111)"*. Gordon-Kenan Research Conference on Dynamics at Surfaces, Slave Regina (USA) August 5-6, 2011.

C6 *"Selective subsurface absorption of hydrogen in palladium using laser distillation"*. ACSIN-10 - 10th International Conference on Atomically Controlled Surfaces, Interfaces and Nanostructures, Granada (Spain) September 21-25, 2009.

C7 *"Electronic Damping of Adsorbate Vibrations at Metallic Surfaces"*. 45. Symposium für Theoretische Chemie, Neuss am Rhein (Germany) September 8-12, 2009.

C8 *"Controlling vibrational dynamics of adsorbates at metal surfaces"*. Symposium on Chemical Physics, University of Waterloo, Waterloo (Canada), November 7-9, 2008.

C9 *"Time-dependent configuration-interaction calculations of laser-driven dynamics in presence of dissipation"*. European conference on surface science, ECOSS 25, University of Liverpool, Liverpool (UK) July 27- August 1, 2008.

C10 *"Caractérisation des états à faible énergie: étude spectroscopique de complexes inorga-niques"*. Symposium Annuel de Chimie Inorganique du Quebec VII, Bishop University, Lennoxville (Canada) August 16-17, 2001.