

Curriculum Vitae

Ioannis Thanopoulos

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Education

2000: PhD in Natural Sciences, Department of Chemistry, Swiss Federal Institute of Technology, Zurich, Switzerland. Title of Thesis: *Quantum dynamics of the CH and NH chromophores in small molecules under coherent infrared multiphoton excitation*. Supervisor: Prof. Martin Quack.

1992: Diploma in Physics, Department of Physics, Swiss Federal Institute of Technology, Zurich, Switzerland.

Employment

06/2020 - present: Associate Professor (tenured), Department of Materials Science, University of Patras, Patras, Greece.

06/2019 - 06/2020: Assistant Professor (tenured), Department of Materials Science, University of Patras, Patras, Greece.

05/2018 - 06/2019: Assistant Professor (tenured), Department of Optics and Optometry, Technological Educational Institute of Western Greece, Aigio, Greece.

05/2014 - 05/2018: Assistant Professor (tenure-track), Department of Optics and Optometry, Technological Educational Institute of Western Greece, Aigio, Greece.

10/2011 - 02/2013: Lecturer (seasonal), Department of Optics and Optometry, Technological Educational Institute of Western Greece, Aigio, Greece.

04/2008 - 09/2012: Research Associate, Theoretical and Physical Chemistry Institute, National Hellenic Research Foundation, Athens, Greece,

10/2005 - 03/2008: Researcher Associate, Department of Chemistry, University of British Columbia, Vancouver, Canada.

06/2004 - 09/2005: Postdoctoral Fellow in the group of Professor Moshe

Shapiro, Department of Chemistry, University of British Columbia, Vancouver, Canada.

02/2001 - 11/2003: Postdoctoral Fellow in the group of Professor Moshe Shapiro, Department of Chemical Physics, Weizmann Institute of Science, Rehovot, Israel,

09/1994 - 09/2000: Research Assistant in the group of Professor Martin Quack, Department of Chemistry, Swiss Federal Institute of Technology, Zurich, Switzerland.

Research Interests

My research interests include: Time-dependent quantum dynamics in closed and open quantum systems, Nanophotonics, Coherent light-matter interaction in multi-level quantum systems, with focus on coherent control on the nanoscale, Plexcitonics, Energy and charge transfer dynamics in quantum systems, Computational electrodynamics.

Awards - Research Grants - Participation in Research Networks

1. 7/2019 - present *Controlled strong light-matter coupling in quantum emitters in interaction with nanodisks MoS₂ for applications in quantum technologies*. Call: *Research support with emphasis on young researcher - 2nd Round*. Greek Ministry of Education. Deputy Academic Principal Investigator.
2. 10/2015 - 3/2019: COST Action CM 1405 *Molecules in Motion (MOLIM)*.
3. 10/2008 - 09/2012: EU FP7 - People, Marie Curie International Reintegration Grant (10/08-09/12), PIRG03-GA-2008-230943, entitled *Control of photo-induced energy transfer (COPET)*.
4. 02/2001 - 11/2003: Postdoctoral Fellowship by the Swiss Friends of the Weizmann Institute.

International Conference and Symposia Organization

1. Co-organizer of the international workshop *MOLIM 2018 - Molecules in Motion: International Workshop on Molecular Quantum Dynamics and Kinetics*, Academy of Athens, Athens, Greece, October 8-10, 2018.
2. Co-organizer of the International Symposium *Quantum Control and Light-Matter Interactions: Recent Computational and Theoretical Results* of the International Conference of Computational Methods in Sciences and Engineering 2007 (ICCMSE 2007), Hotel Marbella, Corfu, Greece, September 25-28, 2007.

Editorial Responsibilities

1. Topic Editor for Molecules, MDPI (https://www.mdpi.com/journal/molecules/topic_editors).
2. Co-editor: Special Issue *Metallic-Nanoparticles Structures and Quantum Emitters*, Nanomaterials, MDPI (https://www.mdpi.com/journal/nanomaterials/special_issues/quantum_emitters).
3. Co-editor: Special Issue *Quantum Control of Matter and Light*, Journal of Modern Optics, (Taylor & Francis), 56 (Issue 6), 2009.
4. Co-editor: American Institute of Physics (AIP) Conference Proceedings 963 (Vol. 2B), 733-846, 2007.

Presentations

Oral Presentations [(*) = invited]

40. XXIV Panhellenic Conference on Solid State Physics and Materials Science, Patras, Greece, September 11-14, 2019, *Non-Markovian spontaneous emission dynamics of a quantum emitter near a MoS₂ nanodisk*.
39. XXIV Panhellenic Conference on Solid State Physics and Materials Science, Patras, Greece, September 11-14, 2019, *Quantum interference effects in strong light-matter interaction near a 2D material*.
38. (*) 16th International Conference on Nanosciences & Nanotechnologies (NN19), Thessaloniki, Greece, July 2-5, 2019, *Exploring localized exciton-polaritons for strong coupling of quantum emitters with applications in quantum technologies*.
37. (*) Energy, Material & Nanotechnology Summer Meeting, Berlin, Germany, July 16-20, 2018, *Quantum processes via semiconductor exciton-polaritons with applications in quantum technologies*.
36. 1st Panhellenic Workshop in Quantum Technologies, Institute of Electronic Structure and Laser, Heraklion, Crete, Greece, June 21-22, 2018, *Control of quantum emitter dynamics and entanglement*.
35. Conference on Quantum Information and Quantum Control, Fields Institute, 28/08/2017-01/09/2017, University of Toronto, Toronto, Canada, *Control of quantum emitter dynamics near a plasmonic nanostructure*.
34. (*) International Workshop on Molecular Quantum Dynamics and Kinetics, ETH Zurich, April 18-21, 2017, Zurich, Switzerland, *Non-Markovian quantum emitter dynamics in a plasmonic environment*.
33. (*) International Symposium: Stimulated Raman Adiabatic Passage in Physics, Chemistry, and Technology, Current status and future directions 25 years after the introduction of STIRAP, Technische Universitaet Kaiserslautern, September 22-25, 2015, Kaiserslautern, Germany, *STIRAP and coherent control: From optical control of chirality to light-driven molecular switches*.
32. (*) Coherence and control in the quantum world: Current and future trends, Weizmann Institute of Science, December 15-18, 2014, Rehovot, Israel, *Multi-dimensional quantum dynamics by partition technique*.

31. (*) Moshe Shapiro Memorial Symposium, University of British Columbia, August 13-15, 2014, Vancouver, BC, Canada, *Effective modes differential equations method for quantum dynamics for large molecules.*
30. (*) Center of Quantum Information and Quantum Control, Fields Institute, University of Toronto, August 8, 2014, Toronto, ON, Canada, *Quantum dynamics by the effective modes differential equations method.*
29. (*) One-day Symposium on "Quantum Dissipation and Control" The Weizmann Institute of Science, Rehovot, Israel (2012), *Time-dependent partition theory of the control of radiationless transitions in 24-mode pyrazine.*
28. (*) International School on "Modelling and Computer Simulation Methods for Dendrimers" Department of Materials Science, University of Patras, Patras, Greece (2011) *Modelling of Charge and Energy Transfer in Dendrimeric Systems*
27. Conference on Quantum Information and Quantum Control, Fields Institute, Toronto, Canada (2011), *Coherent Control of Intramolecular Energy Transfer in 24-mode pyrazine.*
26. (*) Control of Quantum Dynamics of Atoms, Molecules, Ensembles by Light (CAMEL) workshop, Varna, Bulgaria (2010), *Intramolecular energy transfer in 24-mode pyrazine by partitioning technique: A time-dependent perspective.*
25. (*) Department of Computer Science & Technology, University of Peloponnese, Tripoli, Greece (2010), *Control of energy and charge transfer on large molecules.*
24. (*) Center of Quantum Information and Quantum Control, University of Toronto, Toronto, Canada (2010), *Quantum dynamics of large molecules and control of multi-channel processes.*
23. Theoretical and Physical Chemistry Institute, National Hellenic Research Foundation, Athens, Greece (2010), *Steering photo-induced energy and charge transfer in light-harvesting.*
22. (*) Department of Physics, University of Patras, Patras, Greece (2009), *Control of quantum dynamics by coherent light.*
21. 2nd Mediterranean Conference on Nano-Photonics, Medinano-2, Athens, Greece (2009), *Light-controlled molecular current router.*
20. International Commission for Optics (ICO) Topical Meeting on "Emerging Trends and Novel Materials in Photonics", Delphi, Greece (2009), *Laser-controlled porphyrin-based molecular current router.*
19. (*) Frankfurt Institute of Advanced Studies, Johann Wolfgang Goethe-University, Frankfurt, Germany (2009), *Taming Quantum Dynamics by Coherent Light: Theory and Applications.*
18. (*) Latsis-Symposium "Intramolecular Dynamics, Symmetry and Spectroscopy", ETH Zurich, Switzerland (2008), *Coherently controlled adiabatic passage between clusters of degenerate quantum states.*
17. (*) "Quantum World in Real Time" Workshop, Safed, Israel (2007), *Reduced Equations of Motion for Quantum Dynamics at Zero Temperature.*
16. (*) Theoretical and Physical Chemistry Institute, National Hellenic Research Foundation, Athens, Greece (2007), *Taming Quantum Molecular Dynamics: Theory and Applications.*

15. ECAMP IX, 9th European Conference on Atoms, Molecules, and Photons, Heraklion, Crete, Greece (2007), *Coherently Controlled Adiabatic Passage to Multiple Continuum Channels*.
14. (*) 37th Winter Colloquium of The Physics of Quantum Electronics, Snowbird (UT), USA (2007), *Coherently Controlled Adiabatic Passage to Multiple Continuum Channels*.
13. (*) Theoretical and Physical Chemistry Institute, National Hellenic Research Foundation, Athens, Greece (2006), *Quantum-Engineering by Coherent Light*.
12. (*) New Frontiers in Condensed Phase Quantum Dynamics Symposium, PACIFICHEM 2005, Honolulu (HA), USA (2005), *Coherent Control on the Nanoscale*.
11. BIOMACH Conference: "From Molecular Switches to Molecular Motors", Ascona, Switzerland (2005), *Optical Molecular Switch: Automatic Repair of Mutations in Di-Nucleotides*.
10. (*) International Symposium on Laser Control and Molecular Switches, Brijuni, Croatia (2005), *Switching Nucleotide Base-Pairs by Coherent Light*.
9. (*) 35th Winter Colloquium of The Physics of Quantum Electronics, Snowbird (UT), USA (2005), *Coherent Control of Nucleotide Base Pair Mutations*.
8. (*) Department of Materials Science, University of Patras, Patras, Greece (2004), *Photo-Physical Properties of Molecular Materials*.
7. (*) Quantum Information and Quantum Control Conference, Fields Institute and The University of Toronto, Toronto, Canada (2004), *Quantum Coherent Control of Current and Chiral Cat States*.
6. (*) Condensed Phase and Gas Phase Vibrational Dynamics, TSRC Workshop, Telluride (CO), USA (2003), *Complete Control of Degenerate Quantum Systems: Chiral Molecules and Beyond*.
5. Physical Chemistry Seminar, Department of Chemistry, University of British Columbia, Vancouver, Canada (2003), *Two-Step Enantiomeric Purification of Racemic Mixtures by Optical Means*.
4. (*) Seminar über Spezielle Probleme der Physikalischen Chemie, Laboratory of Physical Chemistry ETHZ, Zürich, Switzerland (2002), *Slowing Down of Light by Laser Induced Barrier Hopping*.
3. IESL Seminar, Institute of Electronic Structure & Laser, Heraklion, Greece (2001), *Quantum Dynamics of Important Infrared Chromophores Under Coherent Multiphoton Excitation*.
2. Seminar über Spezielle Probleme der Physikalischen Chemie, Laboratory of Physical Chemistry ETHZ, Zürich, Switzerland (2001), *Mode Selective Tunneling Dynamics in Prototype Nonrigid Molecules*.
1. Physikalische Chemie Kolloquium, Laboratory of Physical Chemistry, ETH Zürich, Switzerland (2000), *Coherent Infrared Multiphoton Excitation of Polyatomic Molecules*.

Poster Presentations

20. Gordon Research Conference, Quantum Control of Light and Matter, Salve Regina University, August 11-16, 2019, Newport, RI, USA, *Strong Light-Matter Interaction of Quantum Emitters next to a 2D Material for Applications in Quantum Technologies*.

19. Gordon Research Conference, Quantum Control of Light and Matter, Mount Holyoke College, July 28 - August 2, 2013, South Hadley, MA, USA, *Quantum stochasticity on the S_2 electronic surface of pyrazine*.
18. Electronic properties of pi-conjugated materials II, University of Würzburg, Würzburg, Germany (2011), *Plasmon-induced Enhancement of optoelectronic processes in organic materials*.
17. Gordon Research Conference: Quantum Control of Light & Matter, Mount Holyoke College, South Hadley (MA), USA (2011), *Coherent Control of Intramolecular Energy Transfer: Internal Conversion in 24-mode pyrazine*.
16. Photonics: 50 Years Laser, University of Patras, Patras, Greece (2010), *Enhancement of ultraviolet photoinduced energy transfer near plasmonic nanostructures*.
15. Fullerene Silver Anniversary Symposium, Hersonissos, Crete, Greece (2010), *Photoinduced charge transfer in heterofullerene-donor hybrids*.
14. Gordon Research Conference: Electronic Processes in Organic Materials, Mount Holyoke College, South Hadley (MA), USA (2010), *Enhancement of ultraviolet photoinduced energy transfer near plasmonic nanostructures*.
13. Gordon Research Conference: Atomic and Molecular Interactions, Colby-Sawyer College, New London (NH), USA (2010), *Intramolecular energy transfer in 24-mode pyrazine by partitioning technique: A time-dependent perspective*.
12. International Conference on Carbon Nanostructured Materials, Santorini, Greece (2009), *Charge Migration Dynamics on a Light-Harvesting Complex*.
11. 9th European Conference on Atoms, Molecules, and Photons, Heraklion, Greece (2007), *Laser-Operated Porphyrin-Based Molecular Current Router*.
10. 37th Winter Colloquium of The Physics of Quantum Electronics, Snowbird (UT), USA (2007), *Laser-Operated Porphyrin-Based Molecular Current Router*.
9. Gordon Research Conference: Electronic Spectroscopy and Dynamics, Bates College, Lewiston (ME), USA (2003), *Complete Control of Cluster-Degenerate Quantum Systems*.
8. International Conference on Multiphoton Processes, ICOMP IX, Crete, Greece (2002), *Two-Step Enantio-selective Optical Switch*.
7. Summer School on Coherent Control in Atomic and Molecular Systems, Corsica, France (2002), *Two-Step Enantio-selective Optical Switch*.
6. Quantum Dynamical Concepts: From Diatomics to Biomolecules, Max-Planck-Institut für Physik Komplexer Systeme, Dresden, Germany (2002), *Optical Enantiomeric Separation by Cyclic Population Transfer Processes*.
5. Cold Molecules 2001: Coherent Control and Cold Molecules, Gif-sur-Yvette, France (2001), *Slow Light in Laser Catalyzed Systems*.
4. Gordon Research Conference: Quantum Control of Atomic and Molecular Motion, Mount Holyoke, South Hadley (MA), USA (2001), *Slow Light in Laser Catalyzed Systems*.
3. Spectroscopy and Computational Challenges in Vibrationally Highly Excited Polyatomic Molecules, CECAM Workshop, Lyon, France (2000), *Dynamical Chirality and the Quantum Dynamics of Bending Vibrations of the CH Chromophore in Methane Isotopomers*.

2. 36th IUPAC Congress, Geneva, Switzerland (1997), *Some Simple Mechanisms of Multiphoton Excitation in Many Level Systems*.
1. Molecular Spectroscopy and Molecular Dynamics, Grainau, Germany (1994), *Absolute Integrated Band Strength and Magnetic Dipole Transition Moments in the $^2P_{3/2} \rightarrow ^2P_{1/2}$ Fine Structure (with Hyperfine Structure) Transition of the Iodine Atom: Experiment and Theory*.

PhD thesis supervision

1. 5/2019 - present: Co-supervisor of the PhD Thesis of Ms. Natalia Domenikou, Department of Materials Science, University of Patras, Greece, with title *Optical control on the nanoscale and applications on quantum technologies*. Supervisor: Prof. E. Paspalakis.
2. 3/2018 - present: Co-supervisor of the PhD Thesis of Mr. Athanasios Sbonias, Department of Materials Science, University of Patras, Greece, with title *Controlled dynamics of quantum systems strongly coupled to nanostructures*. Supervisor: Prof. E. Paspalakis.
3. 11/2015 - 15/2/2021: Co-supervisor of the PhD Thesis of Mr. George Hatzidakis, Physics Section, School of Applied Mathematics and Natural Sciences, National Technical University of Athens, Greece, with title *Optical properties of hybrid structures consisting of quantum emitters and metallic nanoparticles*. Supervisor: Prof. V. Yannopapas.
4. 3/2016 - 14/5/2020: Co-supervisor of the PhD Thesis of Mr. Nikolaos Iliopoulos, Department of Materials Science, University of Patras, Greece, with title *Properties and applications of coupled quantum-plasmonic nanostructures*. Supervisor: Prof. E. Paspalakis.

List of Publications

65. Non-Markovian Spontaneous Emission Dynamics of a Quantum Emitter Near a Transition-Metal Dichalcogenide Layer. I. Thanopoulos, V. Karanikolas, and E. Paspalakis, IEEE J. Sel. Top. Quantum Electronics **27**, 6700108 (2021).
64. Reversible Population Dynamics at the Nanoscale for a Quantum Emitter Near a WSe₂ Monolayer, I. Thanopoulos, V. Karanikolas, and E. Paspalakis, Proceedings **5**, 5 (2020). (10.3390/IOCN2020-07865)
63. Spontaneous Emission Spectrum of a WS₂ Monolayer under Strong Coupling Conditions, V. Karanikolas, I. Thanopoulos, and E. Paspalakis, Proceedings **0**, 5 (2020). (10.3390/IOCN2020-07896)
62. Stimulated Raman Adiabatic Passage in a Quantum Emitter near to a Gold Nanoparticle, N. Domenikou, I. Thanopoulos, V. Yannopapas, and E. Paspalakis, Proceedings **xx**, 5 (2020). (10.3390/IOCN2020-07867)
61. Nonlinear Optical Rectification in a Polar Molecule-Plasmonic Nanoparticle Structure, N. Domenikou, I. Thanopoulos, V. Yannopapas, and E. Paspalakis, Proceedings **1**, 5 (2020). (10.3390/IOCN2020-07873)
60. Strong coupling in a two-dimensional semiconductor/noble metal multilayer platform, V. Karanikolas, I. Thanopoulos, and E. Paspalakis, Phys. Rev. Res. **2**, 033141 (2020).
59. Entanglement dynamics for quantum emitters strongly coupled with molybdenum disulfide nanodisks. N. Iliopoulos, V. Karanikolas, I. Thanopoulos, and E. Paspalakis, Physica E **119**, 113967 (2020).
58. Simulation of Quantum Interference and Non-Markovian Emission Dynamics Induced by Localized Exciton-Polaritons, I. Thanopoulos, V. Karanikolas, and E. Paspalakis, WSEAS Transactions on Systems **18**, 330 (2019).
57. Quantum dynamics and spectra of the iodine atom in a strong laser field as calculated with the URIMIR package. R. Marquardt, M. Quack, J. Stohner, and I. Thanopoulos, Mol. Phys. **117**, 3132-3147 (2019).

56. Non-Markovian spontaneous emission interference near a MoS₂ nanodisk. I. Thanopoulos, V. Karanikolas, and E. Paspalakis, *Opt. Lett.* **44**, 3510 (2019).
55. Non-Markovian spontaneous emission dynamics of a quantum emitter near a MoS₂ nanodisk. I. Thanopoulos, V. Karanikolas, N. Iliopoulos, and E. Paspalakis, *Phys. Rev. B* **99**, 195412 (2019).
54. Strong interaction of quantum emitters with a WS₂ layer enhanced by a gold substrate. V. Karanikolas, I. Thanopoulos, and E. Paspalakis, *Opt. Lett.* **44**, 2049 (2019); selected as Editor's Pick.
53. Quantum correlations in quantum emitters strongly coupled with metallic nanoparticles. N. Iliopoulos, I. Thanopoulos, V. Yannopapas, and E. Paspalakis, *Quant. Inform. Process.* **18**, 110 (2019).
52. Morphology and motion of single optically trapped aerosol particles from digital holography. Gregory David, Kivanc Esat, I. Thanopoulos, and R. Signorell, *Proceedings of SPIE* **10723**, 107231S (2018).
51. Digital holography of optically-trapped aerosol particles. Gregory David, Kivanc Esat, I. Thanopoulos, and R. Signorell, *Communications Chemistry* **1**, 46 (2018).
50. The legacy of J.C. Maxwell: Classical electrodynamics in four equations. I. Thanopoulos, in *Electromagnetic Radiation: History, Theory and research*, C. Koutsojannis (Ed.), (Nova Science Publishers, Inc., New York, 2018), p. 29-48.
49. Laser light and operational hazard classification. I. Thanopoulos and A. Andrikopoulos, in *Electromagnetic Radiation: History, Theory and research*, C. Koutsojannis (Ed.), (Nova Science Publishers, Inc., New York, 2018), p. 79-91.
48. Biological effects of laser irradiation and occupational safety. A. Andrikopoulos and I. Thanopoulos, in *Electromagnetic Radiation: History, Theory and research*, C. Koutsojannis (Ed.), (Nova Science Publishers, Inc., New York, 2018), p. 135-156.
47. Counter-rotating effects and entanglement dynamics in strongly coupled quantum-emitter metallic-nanoparticle structures. N. Iliopoulos, I. Thanopoulos, V. Yannopapas, and E. Paspalakis, *Phys. Rev. B* **97**, 115402 (2018).

46. Optical and microwave control of resonance fluorescence and squeezing spectra in a polar molecule. M.A. Anton, S. Maede-Razavi, F. Carreno, I. Thanopoulos, and E. Paspalakis, *Phys. Rev. A* **96**, 063812 (2017).
45. Modeling of optical binding of submicron aerosol particles in counterpropagating Bessel beams. I. Thanopoulos, D. Luckhaus, and R. Signorell, *Phys. Rev. A*, **95**, 063813 (2017).
44. Non-Markovian dynamics in plasmon-induced spontaneous emission interference. I. Thanopoulos, V. Yannopapas, and E. Paspalakis, *Phys. Rev. B* **95**, 075412 (2017).
43. Quantum dynamics by partition technique. I. Thanopoulos, *Adv. Chem. Phys.* **159**, 349 (2016).
42. Interference effects on quantum light group velocity in cavity induced transparency. A. Eilam and I. Thanopoulos, *J. Phys. B: At. Mol. Opt. Phys.* **48**, 194002 (2015).
41. Dynamics of submicron aerosol droplets in a robust optical trap formed by multiple Bessel beams. I. Thanopoulos, D. Luckhaus, T. Preston, and R. Signorell, *J. Appl. Phys.* **115**, 154304 (2014).
40. Time-dependent partitioning theory of the control of radiationless transitions in 24-mode pyrazine. I. Thanopoulos, X. Li, P. Brumer, and M. Shapiro, *J. Chem. Phys.* **137**, 064111 (2012).
39. Plasmon-induced enhancement of nonlinear optical rectification in organic materials. I. Thanopoulos, E. Paspalakis, and V. Yannopapas, *Phys. Rev. B* **85**, 035111 (2012).
38. Outer-valence Green's function method using natural orbitals for ultrafast electron density dynamics. I. Thanopoulos, *Comput. Theoret. Chem* **970**, 42 (2011).
37. Photodinduced charge transfer in heterofullerene-donor hybrids: A theoretical study, I. Thanopoulos, I.D. Petsalakis, and G. Theodorakopoulos, *Chem. Phys. Lett.*, **506** 248 (2011).
36. Enhancement of ultraviolet photoinduced energy transfer near plasmonic nanostructures. I. Thanopoulos, E. Paspalakis, and V. Yannopapas, *J. Phys. Chem. C* **115**, 4370 (2011).

35. Three dimensional photodissociation in strong laser fields: the memory-kernel effective-mode expansion. X. Li, I. Thanopoulos, and M. Shapiro, *Phys. Rev. A* **83**, 033415 (2011).
34. Intramolecular energy transfer in 24-mode pyrazine by partitioning technique: A time-dependent perspective. I. Thanopoulos, P. Brumer, and M. Shapiro, *J. Chem. Phys.* **133**, 154111 (2010).
33. Coherence Effects in Laser-Induced Continuum Structures. I. Thanopoulos and M. Shapiro, *Adv. Quant. Chem.* **60**, 105 (2010).
32. Optical Control of Molecular Switches. I. Thanopoulos, P. Král, M. Shapiro, and E. Paspalakis, *J. Mod. Opt.* **56**, 686 (2009).
31. Preface: Special Issue on Quantum Control of Matter and Light. E. Paspalakis and I. Thanopoulos, *J. Mod. Opt.* **56**, 685 (2009).
30. Coarse Grained Open System Quantum Dynamics. I. Thanopoulos, P. Brumer, and M. Shapiro, *J. Chem. Phys.* **129**, 194104 (2008).
29. Optical switching of electric charge transfer pathways in porphyrin: A light-controlled nanoscale current router. I. Thanopoulos, E. Paspalakis, and V. Yannopapas, *Nanotechnology* **19**, 445202 (2008).
28. Laser-catalyzed production of ultracold molecules:
The ${}^6\text{Li} + {}^6\text{Li}-{}^7\text{Li} \xrightarrow{\hbar\omega} {}^6\text{Li}-{}^6\text{Li}+{}^7\text{Li}$ reaction. X. Li, G.A. Parker, P. Brumer, I. Thanopoulos, and M. Shapiro, *Phys. Rev. Lett.* **101**, 043003 (2008).
27. Theory of laser enhancement and suppression of cold reactions: The fermion-boson ${}^6\text{Li} + {}^7\text{Li}_2 \xleftrightarrow{\hbar\omega} {}^6\text{Li} {}^7\text{Li} + {}^7\text{Li}$ radiative collision. X. Li, G.A. Parker, P. Brumer, I. Thanopoulos, and M. Shapiro, *J. Chem. Phys.* **128**, 124314 (2008).
26. Strong system-bath interactions and the control of the photodissociation of CH_3I . I. Thanopoulos and M. Shapiro, *J. Phys. B: At. Mol. Opt. Phys.* **41**, 074010 (2008).
25. Preface: Quantum Control and Light-Matter Interactions: Recent Computational and Theoretical Results. E. Paspalakis and I. Thanopoulos, *AIP Conf. Proc.* **963**, 733 (2007).

24. Laser-Induced Dynamical Chirality and Intramolecular Energy Flow in the CH Chromophore. I. Thanopoulos, *AIP Conf. Proc.* **963**, 541 (2007).
23. Laser-Operated Porphyrin-Based Molecular Current Router. I. Thanopoulos, and E. Paspalakis, *Phys. Rev. B* **76**, 035317 (2007); also selected in Virtual Journal of Nanoscale Science & Technology, Vol. 16, Issue 5.
22. Coherently Controlled Adiabatic Passage. P. Král, I. Thanopoulos, and M. Shapiro, *Rev. Mod. Phys.* **79**, 53 (2007); also selected in Virtual Journal of Ultrafast Science, Vol. 6, Issue 2.
21. Docking of Chiral Molecules on Twisted and Helical Nanotubes: Nano-mechanical Control of Catalysis. B. Wang, P. Král, and I. Thanopoulos, *Nano Lett.* **6**, 1918 (2006).
20. Enhanced Selectivity and Yield in Multi-Channel Photodissociation Reactions: Application to CH₃I. I. Thanopoulos and M. Shapiro, *J. Chem. Phys.* **125**, 133314 (2006); also selected in Virtual Journal of Ultrafast Science, Vol. 5, Issue 11.
19. Coherently Controlled Adiabatic Passage to Multiple Continuum Channels. I. Thanopoulos and M. Shapiro, *Phys. Rev. A* **74** 031401(R) (2006); also selected in Virtual Journal of Ultrafast Science, Vol. 5, Issue 10.
18. Detection and Automatic Repair of Nucleotide Base-Pair Mutations by Coherent Light. I. Thanopoulos and M. Shapiro, *J. Am. Chem. Soc.* **127**, 14434 (2005).
17. Quantum-field Coherent Control: Preparation of Broken Symmetry Entangled States. P. Král, I. Thanopoulos, and M. Shapiro, *Phys. Rev. A* **72**, 020303(R) (2005); also selected in Virtual Journal of Ultrafast Science, Vol. 4, Issue 9 and Virtual Journal of Quantum Information, Vol. 5, Issue 9.
16. Switching Nucleotide Base Pairs by Coherent Light. I. Thanopoulos and M. Shapiro, *Lecture Series on Computer and Computational Sciences* **4**, 744 (2005).
15. Bands of Image States in Nanowires Lattices and Infrared-Control of Proteins on Nanotube Ropes. P. Král, D. Segal, M. Shapiro, I. Thanopoulos, B.E. Graninger, and H.R. Sadeghpour, *Fullerenes, Nanotubes, and Carbon Nanostructures* **13**, 267 (2005).

14. Laser-driven coherent manipulation of molecular chirality. I. Thanopoulos, E. Paspalakis, and Z. Kis, *Chem. Phys. Lett.* **390**, 228 (2004).
13. Theory of the Two Step Enantiomeric Purification of 1,3 Dimethylallene. D. Gerbasi, P. Brumer, I. Thanopoulos, P. Král, and M. Shapiro, *J. Chem. Phys.* **120**, 11557 (2004); also selected in Virtual Journal of Ultrafast Science, Vol. 3, Issue 7.
12. Complete Control of Population Transfer between Clusters of Degenerate States. I. Thanopoulos, P. Král, and M. Shapiro, *Phys. Rev. Lett.* **92**, 113003 (2004); also selected in Virtual Journal of Ultrafast Science, Vol. 3, Issue 4.
11. A global electric dipole function of ammonia and isotopomers in the electronic ground state. R. Marquardt, M. Quack, I. Thanopoulos, and D. Luckhaus, *J. Chem. Phys.* **119**, 10724 (2003).
10. Tubular Image States and Light-Driven Molecular Switches. P. Král, B. Graninger, H.R. Sadeghpour, I. Thanopoulos, M. Shapiro, and D. Cohen, *AIP Conf. Proc.* **685**, 465 (2003).
9. Theory of a two-step enantiomeric purification of racemic mixtures by optical means: the D₂S₂ molecule. I. Thanopoulos, P. Král, and M. Shapiro, *J. Chem. Phys.* **119**, 5105 (2003).
8. Two-Step Enantio-selective Optical Switch. P. Král, I. Thanopoulos, M. Shapiro, and D. Cohen, *Phys. Rev. Lett.* **90**, 033001 (2003); see also *Nature Materials*: www.nature.com/materials/news/030206/portal/m030206-2.html; also selected in Virtual Journal of Ultrafast Science, Vol. 2, Issue 2.
7. Tunneling Dynamics of the NH Chromophore in NHD₂ During and After Coherent Infrared Excitation. R. Marquardt, M. Quack, I. Thanopoulos, and D. Luckhaus, *J. Chem. Phys.* **118**, 643 (2003).
6. Slowing Down of Light by Laser Induced Barrier Hopping. I. Thanopoulos and M. Shapiro, *J. Chem. Phys.* **117**, 8404 (2002).
5. Some Simple Mechanisms of Multiphoton Excitation in Many Level Systems. E.A. Donley, R. Marquardt, M. Quack, J. Stohner, I. Thanopoulos and E.U. Wallenborn, *Mol. Phys.* **99**, 1275 (2001).

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3. Dynamical Chirality and the Quantum Dynamics of Bending Vibrations of the CH Chromophore in Methane Isotopomers. R. Marquardt, M. Quack and I. Thanopoulos, *J. Phys. Chem A* **104**, 6129 (2000).
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