

Hadas Soifer

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School of Physics and Astronomy
Tel Aviv University
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Current position

Senior Lecturer (equivalent to Assistant Prof. in the US)
School of Physics and Astronomy, Tel Aviv University.

Education

Ph.D., *direct track*, Physics, Department of physics of complex systems, Weizmann Institute of Science, Rehovot, Israel, 2009 - 2014

Supervisor: Dr. Nirit Dudovich

Title: "*From measurement to control of attosecond dynamics via high harmonic generation*"

M.Sc., Physics, Department of physics of complex systems, Weizmann Institute of Science, Rehovot, Israel, 2007-2009

Supervisor: Dr. Nirit Dudovich

Thesis: "*Time resolved measurements in the attosecond regime*"

BA, Physics, Technion, Haifa, Israel, 2003-2006

Experience

2019 – Present Senior Lecturer, Tel Aviv University, School of Physics and Astronomy.

2014 – 2019 Postdoctoral Fellow, Stanford and SLAC, California

- Ultrafast time- and angle resolved photoemission studies (trARPES)
- Focus on topological materials: topological insulators and Weyl semimetals

2007 – 2014 M.Sc and Ph.D. student, Weizmann Institute of Science, Israel

- High Harmonic Generation (HHG) in atomic and molecular gases
- Attosecond- time-resolved studies of strong-field induced electron dynamics in atoms and molecules

2006 – 2007 CISCO, programmer

2005 – 2006 Technion, Physics department, research assistant in the lab of Prof. Uri Sivan

Awards and Honors

Fellowship for outstanding young faculty members in Quantum science and technology, 2020

Zuckermann Faculty Scholar, 2019

Weizmann Institute National Postdoctoral Award for Women in Science, 2014

Dean's Prize for PhD students, Weizmann, 2014

Fulbright postdoctoral fellowship, 2014

Rothschild postdoctoral fellowship, 2014

Selected to give Weizmann's physics faculty '**Student Colloquium**', 2014

Adams Scholarship for PhD students, 2011-2014

BA, Graduation *Summa Cum Laude*, 2007

Student in the Technion's **Chais Excellence Program**, 2003-2006

'**Dean's list**' during BA 2006

'**President's list**' during BA 2005

'**President's list**' during BA 2004

Peer-reviewed Publications

1. H. Pfau, **H. Soifer**, J. A. Sobota, A. Gauthier, C. R. Rotundu, J. C. Palmstrom, I. R. Fisher, G.-Y. Chen, H.-H. Wen, Z.-X. Shen, P. S. Kirchmann, "*Low work function in the 122-family of iron-based superconductors*", *Phys. Rev. Materials*, **4**, 034801 (2020).
2. A. J. Uzan, **H. Soifer**, O. Pedatzur, A. Clergerie, S. Larroque, Z. Masin, B. D. Bruner, B. Pons, M. Yu. Ivanov, O. Smirnova, and N. Dudovich, "*Spatial molecular interferometry via multidimensional high harmonic spectroscopy*", *Nat. Photons*, **14**, 188–194 (2020).
3. **H. Soifer**, A. Gauthier, A. F. Kemper, C. R. Rotundo, S.-L. Yang, H. Xiong, D. Lu, M. Hashimoto, P. S. Kirchmann, J. A. Sobota, Z.-X. Shen, "*Band resolved imaging of photocurrent in a topological insulator*", *Phys. Rev. Lett.*, **122**, 167401 (2019).
4. S.-L. Yang, J. A. Sobota, Y. He, D. Leuenberger, **H. Soifer**, H. Eisaki, P. S. Kirchmann, and Z.-X. Shen, "*Mode-Selective Coupling of Coherent Phonons to the Bi2212 Electronic Band Structure*", *Phys. Rev. Lett.* **122**, 176403 (2019).
5. D. Faccialà, S. Pabst, B. Bruner, A. Ciriolo, M. Devetta, M. Negro, P. Prasanna Geetha, A. Pusala, **H. Soifer**, N. Dudovich, S. Stagira, C. Vozzi, "*High-Order Harmonic Generation Spectroscopy by Recolliding Electron Caustics*", *J. Phys. B*, **51**, 134002 (2018).
6. S.-L. Yang, J. A. Sobota, Y. He, Y. Wang, D. Leuenberger, **H. Soifer**, M. Hashimoto, D. H. Lu, H. Eisaki, B. Moritz, T. P. Devereaux, P. S. Kirchmann, and Z.-X. Shen, "*Revealing the Coulomb interaction strength in a cuprate superconductor*", *Phys. Rev. B*, **96**, 245112 (2017).
7. S. Gerber*, S.-L. Yang*, D. Zhu, **H. Soifer**, J. A. Sobota, S. Rebec, J. J. Lee, T. Jia, B. Moritz, C. Jia, A. Gauthier, Y. Li, D. Leuenberger, Y. Zhang, L. Chaix, W. Li, H. Jang, J.-S. Lee, M. Yi, G. L. Dakovski, S. Song, J. M. Glowia, S. Nelson, K. W. Kim, Y.-D. Chuang, Z. Hussain, R.

- G. Moore, T. P. Devereaux, W.-S. Lee, P. S. Kirchmann, Z.-X. Shen, “*Femtosecond electron-phonon lock-in by photoemission and x-ray free-electron laser*”, *Science*, **357**, 71-75 (2017).
8. H. Xiong, J. A. Sobota, S.-L. Yang, **H. Soifer**, A. Gauthier, M.-H. Lu, Y.-Y. Lv, S.-H. Yao, D. Lu, M. Hashimoto, P. S. Kirchmann, Y.-F. Chen, Z.-X. Shen, “*3D nature of ZrTe5 band structure measured by high-momentum-resolution photoemission spectroscopy*”, *Phys. Rev. B*, **95**, 195119 (2017).
** Editor’s choice
 9. D. Faccialà, S. Pabst, B. D. Bruner, A. G. Ciriolo, S. De Silvestri, M. Devetta, M. Negro, **H. Soifer**, S. Stagira, N. Dudovich and Caterina Vozzi, “*Probe of Multi-electron Dynamics in Xenon by Caustics in High Order Harmonic Generation*”, *Phys. Rev. Lett.* **117**, 093902 (2016).
 10. B. D. Bruner, Z. Mašín, M. Negro, F. Morales, D. Brambila, M. Devetta, D. Faccialà, A. G. Harvey, M. Ivanov, Y. Mairesse, S. Patchkovskii, V. Serbinenko, **H. Soifer**, S. Stagira, C. Vozzi, N. Dudovich and O. Smirnova, “*Multidimensional high harmonic spectroscopy of polyatomic molecules: detecting sub-cycle laser-driven hole dynamics upon ionization in strong mid-IR laser fields*”, *Faraday Discuss.* (2016)
 11. A. Ferré, **H. Soifer**, O. Pedatzur, C. Bourassin-Bouchet, B. D. Bruner, R. Canonge, F. Catoire, D. Descamps, B. Fabre, E. Mével, S. Petit, N. Dudovich, and Y. Mairesse, “*Two-Dimensional Frequency Resolved Optomolecular Gating of High-Order Harmonic Generation*”, *Phys. Rev. Lett.* **116**, 053002 (2016).
 12. O. Pedatzur, G. Orenstein, V. Serbinenko, **H. Soifer**, B. D. Bruner, A. Uzan, D. Brambila, A. Harvey, L. Torlina, F. Morales, O. Smirnova, and N. Dudovich, “*Attosecond Tunneling Interferometry*”, *Nat. Phys.* **11**, 815-819 (2015).
 13. B. D. Bruner, **H. Soifer**, D. Shafir, V. Serbinenko, O. Smirnova and N. Dudovich, “*Multidimensional high harmonic spectroscopy*”, *J. Phys. B: At. Mol. Opt. Phys.* **48** 174006 (2015).
 14. A. Ferré, A. E. Boguslavskiy, M. Dagan, V. Blanchet, B.D. Bruner, F. Burgy, A. Camper, D. Descamps, B. Fabre, N. Federov, J. Gaudin, G. Geoffroy, J. Mikosch, S. Patchkovskii, S. Petit, T. Ruchon, **H. Soifer**, D. Staedter, I. Wilkinson, A. Stolow, N. Dudovich and Y. Mairesse, “*Multi-channel electronic and vibrational dynamics in polyatomic resonant high-order harmonic generation*”, *Nat. Comms.*, **6**, 5952 (2015).
 15. **H. Soifer**, B. D. Bruner, M. Negro, M. Devetta, D. Facciala, C. Vozzi, S. de Silvestri, S. Stagira and N. Dudovich, “*Studying the universality of field induced tunnel ionization times via high-order harmonic spectroscopy*”, *J. Phys. B*, **47**, 24029 (2014).
 16. A. Ferré, D. Staedter, F. Burgy, M. Dagan, D. Descamps, N. Dudovich, S. Petit, **H. Soifer**, V. Blanchet, and Y. Mairesse, “*High-order harmonic transient grating spectroscopy of SF₆ molecular vibrations*”, *J. Phys. B*, **47**, 124023 (2014)

17. A. Artzy-Schnirman, E. Abu-Shah, M. Dishon, **H. Soifer**, Y. Sivan, Y. Reiter, I. Benhar and U. Sivan, "On the limited recognition of inorganic surfaces by short peptides compared with antibodies", *J. Peptide Sci.* **20**, 446–450 (2014)
18. D. Shafir, **H. Soifer**, C. Vozzi, A. S. Johnson, A. Hartung, Z. Dube, D. M. Villeneuve, P. B. Corkum, N. Dudovich, and A. Staudte, "Trajectory-Resolved Coulomb Focusing in Tunnel Ionization of Atoms with Intense, Elliptically Polarized Laser Pulses", *Phys. Rev. Lett.* **111**, 023005 (2013)
19. **H. Soifer**, M. Dagan, D. Shafir, B. D. Bruner, M. Y. Ivanov, V. Serbinnenko, I. Barth, O. Smirnova, and N. Dudovich, "Spatio-spectral analysis of ionization times in high-harmonic generation", *Chem. Phys.* **414**, 176 (2013).
20. D. Shafir*, **H. Soifer***, B. D. Bruner, M. Dagan, Y. Mairesse, S. Patchkovskii, M. Y. Ivanov, O. Smirnova, and N. Dudovich, "Resolving the time when an electron exits a tunnelling barrier", *Nature* **485**, 343 (2012).
* **Equal contribution**
21. D. Shafir, B. Fabre, J. Higuier, **H. Soifer**, M. Dagan, D. Descamps, E. Mével, S. Petit, H. Wörner, B. Pons, N. Dudovich, and Y. Mairesse, "Role of the Ionic Potential in High Harmonic Generation", *Phys. Rev. Lett.* **108**, 203001 (2012).
22. **H. Soifer**, P. Botheron, D. Shafir, A. Diner, O. Raz, B. D. Bruner, Y. Mairesse, B. Pons, and N. Dudovich, "Near-Threshold High-Order Harmonic Spectroscopy with Aligned Molecules", *Phys. Rev. Lett.* **105**, 143904 (2010).
23. A. Artzy Schnirman, E. Zahavi, **H. Yeger**, R. Rosenfeld, I. Benhar, Y. Reiter and U. Sivan, "Antibody Molecules Discriminate between Crystalline Facets of a Gallium Arsenide Semiconductor", *Nano Lett.* **6**, 1870-1874 (2006).

Oral presentations

- *Invited* - New Generation in Strongly Correlated Electron Systems, Sliema, Malta 2020 (*Postponed due to COVID-19*).
- *Invited* – Discussion leader - GRC on Multiphoton Processes, Bryant University, Smithfield, US 2020 (*Postponed due to COVID-19*).
- *Invited* - Zuckerman Symposium, Rehovot, Israel 2019.
- Paris Ultrafast Conference, Paris, France 2019.
- *Invited* - CMP seminar, UC Davis, Davis, US 2018.
- *Invited* - CMP seminar, Caltech, Pasadena, US 2018.
- ALS-CXRO Seminar, LBNL, Berkeley, US 2017.
- APS March Meeting, New Orleans, US 2017.
- Seminar at the group of David Reis, SLAC, Menlo Park, US 2017.
- Photon Science Seminar, SLAC, Menlo Park, US 2015.
- CMP seminar, Caltech, Pasadena, US 2014.
- CFEL seminar, MPI for the Structure and Dynamics of Matter, Hamburg, Germany 2014.
- Ultrafast Phenomena XVIII, Lausanne, Switzerland 2012.

- Seminar at the group of Franz Kartner, MIT, Boston, US 2012.
- Seminar at the group of Keith Nelson, MIT, Boston, US 2012.
- Seminar, CELIA, Bordeaux university I, Bordeaux, France 2011.
- IPS conference, Tel-Aviv, Israel 2010.
- Seminar, NRC, Ottawa, Canada, 2010.

Poster presentations

- Ultrafast phenomena in Cooperative Systems – Gordon conference, Italy, 2020.
- SSRL/LCLS Users meeting, CA, USA, 2016.
- Ultrafast processes in correlated electron systems – Gordon conference, CA, USA, 2014.
- Multiphoton Processes – Gordon conference, NH, USA, 2012.
- ATTO03, Hokaido, Japan, 2010.
- Multiphoton Processes - Gordon conference, NH, USA, 2010.

Service

Referee for Physical Review Letters, Nature Comms.

Referee for Fulbright Junior Advanced Research Award.

Organizer of AMO seminar at Weizmann Institute (2012).