

Erfan Saydanzad

Assistant Professor of Physics, Department of Physics, Kennesaw State University
esaydanz@kennesaw.edu · facultyweb.kennesaw.edu/esaydanz · ORCID 0000-0002-1472-5593

RESEARCH

Current **Ultrafast and strong-field physics**
Theoretical and computational
Multi-channel strong-field ionization and photoelectron emission from metallic, dielectric and semiconducting nanoparticles; attosecond plasmonic near-field imaging; time-domain Fano theory of autoionizing molecular Rydberg states and nonadiabatic dynamics.

APPOINTMENTS

Aug 2025 – **Assistant Professor of Physics**
Kennesaw State University, Marietta, GA
Department of Physics

Dec 2021 – Jul 2025 **Postdoctoral Research Associate**
J. R. Macdonald Laboratory, Kansas State University, KS

2013–2015, 2021–2022 **Lecturer and Laboratory Instructor**
Kansas State University, KS

Aug 2009 – Aug 2013 **Lecturer and Laboratory Instructor**
University of Kurdistan, Iran

2011–2012 **Researcher, Organic LED Laboratory**
K. N. Toosi University of Technology, Iran

EDUCATION

2013–2021 **Ph.D., Atomic, Molecular and Optical Physics**
Kansas State University, Manhattan, KS, USA

2006–2009 **M.S., Photonics**
Graduate University of Advanced Technology, Kerman, Iran

2002–2006 **B.S., Solid-State Physics**
University of Kurdistan, Iran

TEACHING AT KENNESAW STATE

PHYS 3260 **Mathematical Physics**
Kennesaw State University
Lecture notes written and published openly.

PHYS 2211 **Principles of Physics I**
Kennesaw State University

PHYS 2211L **Introductory Physics Laboratory I**
Kennesaw State University

Direct Method

Guided Research in Quantum Mechanics and Spectroscopy

Kennesaw State University

One-to-one research mentoring for undergraduates.

RESEARCH RESOURCES

Current

Dedicated 367-core compute server

Kennesaw State University

Supports large-scale classical-trajectory sampling and coupled-channel wave-packet propagation without an external allocation.

PUBLICATIONS

1. E. **Saydanzad**, J. Powell, T. Renner, A. Summers, D. Rolles, C. Trallero-Herrero, M. F. Kling, A. Rudenko, and U. Thumm, "Generation of fast photoelectrons in strong-field emission from metal nanoparticles," *Nanophotonics* **14**, 1355–1364 (2025).
2. E. **Saydanzad**, J. Powell, A. Summers, S. J. Robatjazi, C. Trallero-Herrero, M. F. Kling, A. Rudenko, and U. Thumm, "Enhanced cutoff energies for direct and rescattered strong-field photoelectron emission of plasmonic nanoparticles," *Nanophotonics* **12**, 1931–1942 (2023).
3. J. A. Powell, J. Li, A. Summers, S. J. Robatjazi, M. Davino, P. Rupp, E. **Saydanzad**, C. M. Sorensen, D. Rolles, M. F. Kling, and others, "Strong-field control of plasmonic properties in core-shell nanoparticles," *ACS Photonics* **9**, 3515–3521 (2022).
4. E. **Saydanzad**, J. Li, and U. Thumm, "Strong-field ionization of plasmonic nanoparticles," *Physical Review A* **106**, 033103 (2022).
5. J. Li, E. **Saydanzad**, and U. Thumm, "Imaging plasmonic fields with atomic spatiotemporal resolution," *Physical Review Letters* **120**, 223903 (2018).
6. E. **Saydanzad**, J. Li, and U. Thumm, "Spatiotemporal imaging of plasmonic fields near nanoparticles below the diffraction limit," *Physical Review A* **98**, 063422 (2018).
7. J. Li, E. **Saydanzad**, and U. Thumm, "Attosecond time-resolved streaked photoelectron spectroscopy of transition-metal nanospheres," *Physical Review A* **95**, 043423 (2017).
8. E. **Saydanzad**, J. Li, and U. Thumm, "Characterization of induced nanoplasmonic fields in time-resolved photoemission: a classical trajectory approach applied to gold nanospheres," *Physical Review A* **95**, 053406 (2017).
9. J. Li, E. **Saydanzad**, and U. Thumm, "Retrieving plasmonic near-field information: a quantum-mechanical model for streaking photoelectron spectroscopy of gold nanospheres," *Physical Review A* **94**, 051401(R) (2016).
10. M. H. Rezvani, F. Farajollahi, A. Nikfarjam, P. Bakhtiarpour, and E. **Saydanzad**, "Effect of solvents, their mixture and thermal annealing on the performance of solution processed polymer light-emitting diodes," *Materials* **6**, 1994–2006 (2013).

MANUSCRIPTS IN PREPARATION

1. T. Renner, J. Powell, et al., A. Rudenko, U. Thumm, and E. **Saydanzad**, "Breakdown of ponderomotive cutoff energy scaling in strong-field emission from dielectric nanoparticles," [Corresponding author].
2. E. **Saydanzad**, V.-H. Hoang, and U. Thumm, "Time-resolved Rydberg dynamics in molecules."