

Prof. Stelios (Stylianos) Tzortzakis

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Prof. Stelios (Stylianos) Tzortzakis received his Ph.D. from the Ecole Polytechnique (France, 2001) in Nonlinear Optics. He is a Full Professor of Physics at Texas A&M University at Qatar (2018-) and Assoc. Prof. at the Materials Department of the University of Crete in Greece (2011-). He has worked and collaborated with many research laboratories in Europe, Asia, and the USA. He has held a CNRS position at the Ecole Polytechnique in France (2003-2005). In 2006 he established, with a European Union Marie Curie Excellence Grant, the UNIS research group at IESL-FORTH, where he served also as the deputy director of the Institute (2009-2015), while presently he is a collaborating faculty.

Prof. Tzortzakis is a recognized expert in nonlinear laser propagation phenomena and has created the *filamentation.org* website, a unique information resource for the related scientific community. He has been the chair/co-chair and member of scientific committees for many international conferences. He has more than 150 publications in high impact peer-reviewed journals (like in Nature) with more than 7700 citations, more than 100 plenary and invited talks at international conferences, h-index=44, g-index=84 (Google Scholar). He teaches, regularly, classical mechanics, electricity and magnetism, quantum mechanics, thermodynamics, optics, photonics courses, and “Physics for World Leaders” for schools of foreign affairs. He has supervised >40 undergraduate and graduate students (9 Ph.D.). He has a long successful track record in organizing and participating in national and international research funding projects, summing more than 10M€ in the last ten years. In 2013 he received the “**Rozhdestvensky Medal**” of the **Russian Optical Society** for key contributions in strong field Laser and THz science.

Scientific community

Active referee for the following journals: Nature Photonics, Nature Communications, Physical Review Letters, Physical Review A, Optics Letters, Optics Express, Applied Physics Letters, Applied Physics A&B, and others.

Member of the Scientific and Technical Assessor Committee (CACT) of the **Salamanca Pulsed Lasers Center** CLPU, the biggest laser center in Spain (2014-present)

Member of the Physical Sciences board of the Greek National Research and Technology Council; responsible for **advising the Greek Ministry of Education** on the national research policy (2014-2018)

Research Projects

Long experience (>20 years) from participation in European-Union funded projects (in Greece and France; for applications mainly in nonlinear optics, intense fs lasers, and THz physics). National projects from France, Greece (GSRT), and Qatar (QNRF) and bi-national projects, like the French-German “Teramobile” project for the monitoring of the atmosphere using a unique powerful fs mobile laser system, and the Greek-French joint

lab “MINOS” (Greek-Director, 2015-2023). Winner of many “Excellence grants” in Greece and the EU, including a Marie Curie Excellence Grant ~2M€.

Research Experience

- Nonlinear interactions of intense femtosecond laser pulses with matter.
- Nonlinear laser propagation phenomena - filamentation.
- Photonic structuring in the bulk of transparent solid materials.
- Quantum and complexity physics with photonic lattices.
- Intense tunable THz sources and THz nonlinear Optics.
- Tunable THz metamaterials.
- Environmental/atmospheric physics.

Scientific output and impact

- More than **150 articles** in high impact peer-reviewed journals
- More than **7700 citations; h-index = 44; g-index = 84; i-10 = 98**
- More than **200 International Conferences, > 100 plenary and invited talks**

Selected Publications

- **A. D. Koulouklidis, C. Gollner, V. Shumakova, V. Fedorov, A. Pugzlys, A. Baltuska, and S. Tzortzakis**, "Observation of extremely efficient terahertz generation from mid-infrared two-color laser filaments", *Nature Communications* **11**, 292 (2020) [[Highlighted in Phys.org](#)]
- **A. C. Tasolamprou, A. D. Koulouklidis, C. Daskalaki, C. P. Mavidis, G. Kenanakis, G. Deligeorgis, Z. Viskadourakis, P. Kuzhir, S. Tzortzakis, M. Kafesaki, E. N. Economou, and C. M. Soukoulis**, *Experimental Demonstration of Ultrafast THz Modulation in a Graphene-Based Thin Film Absorber through Negative Photoinduced Conductivity*, *ACS Photonics* **6**, 720-727 (2019) [[Journal Cover Page](#)]
- **A. D. Koulouklidis, D. G. Papazoglou, V. Y. Fedorov, and S. Tzortzakis** "Phase Memory Preserving Harmonics from Abruptly Autofocusing Beams" *Phys. Rev. Lett.* **119**, 223901 (2017) [[Editors' Suggestion](#)]
- **I. Dey, K. Jana, V. Y. Fedorov, A. D. Koulouklidis, A. Mondal, M. Shaikh, D. Sarkar, A. D. Lad, S. Tzortzakis, A. Couairon, and G. R. Kumar** "Highly efficient broadband terahertz generation from ultrashort laser filamentation in liquids" *Nature Communications* **8**, 1184 (2017) [[Highlighted in Phys.org](#)]
- **M. Chanal, V. Y. Fedorov, M. Chambonneau, R. Clady, S. Tzortzakis, and D. Grojo** "Crossing the threshold of ultrafast laser writing in bulk silicon" *Nature Communications* **8**, 773 (2017) [[Highlighted in Phys.org](#)]
- **V. Yu. Fedorov, M. Chanal, D. Grojo and S. Tzortzakis**, "Accessing Extreme Spatiotemporal Localization of High-Power Laser Radiation through Transformation Optics and Scalar Wave Equations" *Phys. Rev. Lett.* **117**, 043902 (2016)
- **K. Liu, A. D. Koulouklidis, D. G. Papazoglou, S. Tzortzakis, X.-C. Zhang**, "Enhanced terahertz wave emission from air-plasma tailored by abruptly autofocusing laser beams", *Optica* **3**, 605-608 (2016)
- **P. Panagiotopoulos, D. G. Papazoglou, A. Couairon, and S. Tzortzakis**, "Sharply autofocused ring-Airy beams transforming into nonlinear intense light bullets", *Nature Communications* **4**, 2622 (2013)
- **M. Bellec, P. Panagiotopoulos, D. G. Papazoglou, N.K. Efremidis, A. Couairon, S. Tzortzakis** "Observation and optical tailoring of photonic lattice filaments" *Phys. Rev. Lett.* **109**, 113905 (2012) [[Highlighted in Physics](#)]
- **N.-H. Shen, M. Massaouti, M. Gokkavas, J.-M. Manceau, E. Ozbay, M. Kafesaki, T. Koschny, S. Tzortzakis, C. M. Soukoulis**, "Optically implemented broadband blue-shift switch in the terahertz regime", *Phys. Rev. Lett.* **106**, 037403 (2011)