

Dr. Adrian Petris

Short CV

Dr. **Adrian PETRIS**, physicist, Doctor in Physics (1996, thesis on Nonlinear Optics), Senior scientific researcher I (CS I) at National Institute for Laser, Plasma and Radiation Physics (INFLPR), Dept. Lasers, Bucharest-Magurele.

- Research expertise (selection): photonic functionalities in nonlinear optical materials (spatial soliton waveguides, lasing, all-optical phase modulation, optical limiting), characterization of nonlinear optical materials (Z-scan, I-scan, wave mixing, pump-probe interferometry, third harmonic generation), optical nonlinearities in sub-wavelength structures and in nano-materials, holography and holographic interferometry.
- Awards: Romanian Academy Award for Physics (in 1999 for 1997); International Centre for Theoretical Physics (ICTP), Trieste, Regular Associate Award (2005).
- Research stages (selection): Imperial College, London (1996-2001, each year); Univ. "La Sapienza", Rome (2001-2009, each year, 2011); ICTP, Trieste (2006-2012, each year).
- Project leader of 7 research grants in Nonlinear Optics (funded by: Romanian Academy, MCT, MEC, CNCSIS, UEFISCDI); Key researcher in 6 international projects (PHOREMOST, COST actions, bilateral projects) and in 14 national projects on Nonlinear Optics and Nanophotonics (optical processes, characterization and applications of nonlinear optical response) (in Ideas, Partnerships, CEEX, CERES, CNCSIS grants).
- Teaching activity: Tech. Univ. of Civil Eng. (1999-2005) - Physics; Univ. Bucharest (1988-2002) - Optics, Information Optics; Supervisor of 20 Diploma and MS theses on Nonlinear Optics.
- Member of the Scientific Council of INFLPR (2004 – 2022). Expert in elaboration of the research strategy in Optics and Photonics in Romania (ESFRO Project, 2011) and of the European Roadmap for Photonics and Nanotechnologies, MONA - "Merging Optics and Nanotechnologies" European Consortium (2008).
- Editor-in-Chief: Journal of Optoelectronics and Advanced Materials, Optoelectronics and Advanced Materials – Rapid Communications; Member of the Editorial Board: Romanian Reports in Physics. Referee (optics): 10 ISI journals.
- Member of Program Committees of Intl. Conf.: ROMOPTO (Romania, 2006, 2009, 2012, 2015, INDLAS (Romania, 2007, 2008, 2013, 2014 – co-chairman), Correlation Optics (Ukraine, 2013, 2015, 2017, 2019), Workshop on Adv. Nano- and Biomaterials and their Device Applications (Romania, 2012, 2014, 2016).
- Publications/conferences (on Nonlinear Optics): Over 80 scientific papers published and over 100 scientific communications presented at international conferences. Co-author of book chapters (Kluwer, Springer).

• **Recent selected publications** (photonic functionalities and characterization of nonlinear optical materials):

- [1] I. Dancus, V. I. Vlad, **A. Petris**, N. Gaponik, V. Lesnyak, A. Eychmüller, Saturated near-resonant refractive optical nonlinearity in CdTe quantum dots, **Optics Letters** **35**, 1079 (2010);
- [2] **A. Petris**, B. S. Heidari, V. I. Vlad, M. Alonzo, F. Pettazzi, N. Argiolas, M. Bazzan, C. Sada, D. Wolfersberger, E. Fazio, The r_{33} electro-optic coefficient of Er:LiNbO₃, **Journal of Optics** **12** (1), 015205 (2010)
- [3] I. Dancus, V.I. Vlad, **A. Petris**, N. Gaponik, V. Lesnyak, A. Eychmüller, Optical limiting and phase modulation in CdTe nanocrystal devices, **Journal of Optoelectronics and Advanced Materials** **12**, 119 (2010);
- [4] S. T. Popescu, **A. Petris***, V. I. Vlad, Fast writing of soliton waveguides in lithium niobate using low-intensity blue light, **Applied Physics B: Lasers and Optics** **108** (4), 799 (2012) *Corresponding author
- [5] I. Dancus, S.T. Popescu, **A. Petris***, Single shot interferometric method for measuring the nonlinear refractive index, **Optics Express** **21**, 31303 (2013);
- [6] E. Fazio, S. T. Popescu, **A. Petris**, F. Devaux, M. Ragazzi, M. Chauvet, V. I. Vlad, Use of quasi-local photorefractive response to generated superficial self-written waveguides in lithium niobate, **Optics Express** **21**, 25834 (2013);
- [7] I. Dancus, V. I. Vlad, **A. Petris***, T. Bazaru Rujoiu, I. Rau, F. Kajzar, A. Meghea, A. Tane, Z-scan and I-scan methods for characterization of DNA optical nonlinearities, **Romanian Reports in Physics** **65**, 966 (2013);
- [8] S. T. Popescu, **A. Petris***, V. I. Vlad, Interferometric measurement of the pyroelectric coefficient in lithium niobate, **Journal of Applied Physics** **113**, 043101 (2013);
- [9] S. T. Popescu, **A. Petris***, V. I. Vlad, Recording of self-induced waveguides in lithium niobate at 405 nm wavelength by photorefractive–pyroelectric effect, **Journal of Applied Physics** **113**, 213110 (2013);
- [10] S. T. Popescu, P. Gheorghe, **A. Petris***, Measuring very low optical powers with a common camera, **Applied Optics** **53** (24), 5460 (2014)
- [11] **A. Petris***, P. Gheorghe, V. I. Vlad, I. Rau, F. Kajzar, Interferometric method for the study of spatial phase modulation induced by light in dye-doped DNA complexes, **Romanian Reports in Physics** **67**, 1373 (2015);
- [12] P. Gheorghe, **A. Petris***, V. I. Vlad, I. Rau, F. Kajzar, A. M. Manea, Temporal evolution of the laser recording of gratings in DNA-CTMA-Rh610 films, **Romanian Reports in Physics** **67**, 1412 (2015);
- [13] T. Bazaru Rujoiu, **A. Petris***, V. I. Vlad, I. Rau, A. M. Manea, F. Kajzar, Lasing in DNA–CTMA doped with Rhodamine 610 in butanol, **Physical Chemistry Chemical Physics** **17**, 13104 (2015);
- [14] **A. Petris***, P. Gheorghe, V. I. Vlad, E. Rusu, V. Ursaki, I. Tiginyanu, Ultrafast third-order optical nonlinearity in SnS₂ layered compound for photonic applications, **Optical Materials** **76**, 69-74 (2018).
- [15] **A. Petris***, P. S. Gheorghe, I. Rau, A. M. Manea-Saghin, F. Kajzar, All-optical spatial phase modulation in films of dye-doped DNA biopolymer, **European Polymer Journal** **110**, 130 (2019)
- [16] **A. Petris**, I. C. Vasiliu, P. Gheorghe, A-M. Iordache, L. Ionel, L. Rusen, S. Iordache, M. Elisa, R. Trusca, D. Ulieru, S. Etemadi, R. Wendelbo, J. Yang, K. Thorshaug, Graphene oxide-based silico-phosphate composite films for optical limiting of ultrashort near-infrared laser pulses, **Nanomaterials** **10**, 1638 (2020)
- [17] **A. Petris***, P. Gheorghe*, T. Braniste, I. Tiginyanu, Ultrafast third-order nonlinear optical response excited by fs laser pulses at 1550 nm in GaN crystals, **Materials** **14**, 3194 (2021)

[18] P. Gheorghe, **A. Petris***, Accurate modeling of the recording process of light-induced gratings in As_2S_3 , **Romanian Reports in Physics** **74**, 404 (2022)

[19] **A. Petris***, P. Gheorghe, I. Rau, DNA – CTMA matrix influence on Rhodamine 610 light emission in thin films, **Polymers** **15**, 3105-1 - 3105-11 (2023).

[20] **A. Petris***, P. Gheorghe, I. Rau, Influence of continuous wave laser light at 532 nm on transmittance and on photoluminescence of DNA-CTMA-RhB solutions, **Heliyon** **9**(10), e20410 (2023).

6.11.2023

