Dr. Aristides Marcano Olaizola

Aristides Marcano Olaizola (PhD), Chair & Professor
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Education

Master of Sciences in Physics and Mathematics (**With Honors**), Moscow State University, M.V. Lomonosov, Moscow, Russia (1977).

Doctor of Philosophy (PhD) in Physics and Mathematical Sciences, Moscow State University, M.V. Lomonosov, Moscow, Russia (1980).

Area of expertise

Applied and nonlinear optics, fluorescence, Raman, absorption spectroscopy, thermal lensing spectroscopy, characterization of dye solutions, nonlinear absorption and fluorescence, high sensitivity detection system and measurement of ultra-low absorption, fiber optics sensors, four-wave mixing and polarization spectroscopy, nonlinear dynamic induced by lasers in liquids, Z-scan characterization of nonlinear refraction and absorption, characterization of photo-sensitizers and photodynamic therapy studies.

Recent Grants

National Science Foundation – Centers for Research Excellence and Technology (NSF-CREST) Grant No 0630388: " Creation of the Center for Research and Education in Optical Sciences and Applications (CREOSA)", 2006-2012, 5,000,000.00 USD.

NASA URC-5 (2009-2015) "NASA Optical Science Center for Applied Research" Co-I, 5,000,000 USD.

NSF IIP-0646587 (2009-2010), Intelligent Instruction Systems using Augmented Reality", PI for Delaware State University, 149,093 USD.

NSF MRI 09-502 (2009-2011) "MRI Acquisition of a femtosecond laser spectroscopic system for the Center for Research and Education in Optical Sciences and Applications", PI, 48,178 USD.

NSF1156640 (2012-2013), "US-Mexico Collaborative Program on Photothermal Imaging and Photothermal Microscopy", PI 14,893 USD.

NSF CREST (2012-2017) "Center for Research and Education in Optical Sciences and Applications: Promoting Scientific Discoveries, technological Advances, and STEM Education", Co-PI, 5,000,000 USD.

DSU CIBER EPSCoR seed Grant, "Development of a practical low cost photothermal lens spectrophotometer for spectroscopic characterization of turbid samples", Role PI. Total awarded: 29,650 USD. Period Covered: Feb. 2013- July 2013

Some latest publications

A. Marcano, G. Gwanmesia, M. King and D. Caballero; "Determination of thermal diffusivity of opaque materials using the photothermal mirror method," Opt. Eng., 53(12), 127101 (2014). DOI:10.1117/1.OE.53.12.127101.

D. Pokrajac, A. Lazarevic, V. Kecman, A. Marcano, Y. Markushin, T. Vance, N. Reljin , S. McDaniel, and N. Melikechi, “Automatic Classification of Laser-Induced Breakdown Spectroscopy Data of Protein Biomarkers “, Applied Spectroscopy, 68 (9), 1067-1075 (2014). DOI: 10.1366/14-07488.

A. Marcano O., S. Alvarado, J. Meng, D. Caballero, E. Marin and R. Edziah, “White Light Photothermal lens spectrophotometer for determination of absorption in scattering samples”, Applied Spectroscopy, 68 (6), 680-685, June 2014. DOI: 10.1366/13-07385.

S. Alvarado, E. Marin, A. Calderon and A. Marcano, “Improvement of an optical fiber sensor for the detection of low concentrations of solutes using the photothermal effect”, Thermochimica Acta, 593, 12-15 (2014) (online August 13, 2014). DOI: 10.1016/j.tca.2014.08.012.

A. Marcano O., Isaac Basaldua, Aaron Villette, Raymond Edziah, Jinjie Liu, Omar Ziane, and Noureddine Melikechi, “Photothermal lens spectrometry measurements in highly turbid media”, Appl. Spectros. 67 (9), 1013-1018, 2013 (DOI: 10.1366/12-06970).

A. Marcano O., “Optimized Photothermal Lens Determination of Nonlinear Absorption”, International Journal of Thermophysics. Published on line 18 November 2012. DOI: 10.1007/s10765-012-1359-x.

A. Marcano O., F. Delima, Y. Markushin, and N. Melikechi, “Determination of Linear and Nonlinear Absorption of Metallic Colloids using Photothermal Lens Spectrometry”, J. Opt. Soc. Am. B **28**, 281-287 (2011).

Y. Markushin, A. Marcano O., S. Rock and N. Melikechi, “Determination of protein hydrogen composition by laser-induced breakdown spectroscopy”, J. Anal. At. Spectrom. **25**, 148-149 (2010), DOI: 10.1039/b920384b

R. A. Cruz, A. Marcano O., C. Jacinto, and T. Catunda, “Ultra-sensitive Thermal Lens Spectroscopy of Water”, Opt. Lett. **34** (12), 1882-1884 (June 15, 2009). Indexed in TPDSci.

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