

General information

Name: **Erick Sarmiento Gomez**

Date of Birth: June 20, 1983

Current position: *Postdoctoral Fellow*, Complex Fluids Group, Institute of Physics, University of San Luis Potosí, San Luis Potosí, México

SNI candidate (National Researchers System)

E-mail: esarmiento@ifisica.uaslp.mx, esargom@gmail.com

Education

Bachelor degree (Physics). School of Physics and Mathematics, Autonomous University of Puebla (BUAP) 2006. GPA: 92/100

M.S. in Physics, National University of Mexico, 2008.

Ph.D. in Science (Physics), Institute of Physics, National University of Mexico. Thesis title: *“The Brownian motion in complex fluids embedded with thread like structures”*, 2012. “Alfonso Caso” award, in recognition of one of the best 2012 PhD thesis, Posgrado en Ciencias Físicas, National University of Mexico

Areas of interest

Rheological properties of worm-micelle solutions, polymeric systems and semiflexible biopolymers

Microrheological techniques in complex fluids

Light propagation in turbid media

Short pulse propagation in turbid media

Synthesis of anisotropic colloids

Dynamic and static properties of anisotropic colloids under confinement

Interaction of colloids with light-induced external fields

Techniques

Dynamic Light Scattering (DLS) and Diffusing Wave Spectroscopy (DWS)

DWS and multi-speckle based microrheology

DWAS, diffusing wave absorption spectroscopy (absorption-dependent DWS)

Mechanical Rheometry

Confocal Microscopy and standard microscopy

Recovery of optical properties using integrating spheres measurements

Monte Carlo methods for light propagation in turbid media

Periodical optical tweezers

Teaching Experience

Teaching assistant at National University of Mexico, graduate level, Statistical Physics, July 2007 - January 2008, July 2008 – January 2009 and January 2011 – August 2011.

Summer professor, graduate level, *Synthesis and dynamics properties of anisotropic colloids*, University of Guanajuato, July-August 2013

Advisor in summer short stays, undergrad level: a) Mariana Dorantes, project title: Electrophoretic Mobility in colloids. b) Lisbet Pérez, project title: Depletion forces in a binary mixture of colloids. c) María de Jesús Martínez, project title: Emulsification-based synthesis of colloidal clusters.

Co-advisor, Master Thesis, José Ramón Villanueva Valencia, Posgrado en Física. University of Guanajuato.

Selected posters and presentations

Gordon Research Conferences of Chemistry and Physics of Liquids, **poster**: “Rheology and microrheology of worm-micelle solutions made of mixtures of zwitterionic and anionic surfactants”. Holderness School New Hampshire EUA, august 2009.

Gordon Research Conferences of Chemistry and Physics of Liquids, **poster**: “Shear induced structures in dilute worm-micelle solutions made of mixtures of zwitterionic and anionic surfactants”. Holderness School New Hampshire EUA, august 2009.

Segundas Jornadas de Instrumentación en la UNAM, **invited talk**: “Microreología de Fluidos Complejos”. UNAM, august 2009.

XV Meeting of fluids dynamics division, México, **oral presentation**: “Microreología en micelas tubulares flexibles usando espectroscopía de onda difusa (DWS)”. Acapulco Guerrero, Mexico, october 2009.

Gordon Research Conferences of Chemistry and Physics of Liquids, **poster**: “Dynamics of Brownian particles embedded in cross-linked polymeric networks”. Holderness School New Hampshire EUA, july, 2011.

Gordon Research Conferences of Chemistry and Physics of Liquids, **poster**: “Rheology and microrheology of concentrated bacteriophage fd colloidal suspensions using DWS”. Holderness School New Hampshire EUA, july, 2011.

22nd General congress of the International Commission for Optics (ICO), **oral presentation**: “A dynamical light scattering technique and its applications in viscoelastic networks in soft matter”, Puebla Mexico, august 2011

Seminar of the department of engineering, University of Guanajuato, *invited talk*: “El Movimiento Browniano en fluidos complejos embebidos con estructuras filiformes”, February 2012

Seminar of the Mechanical Engineering Faculty, University of San Luis Potosí, *invited talk*: “Dinámica coloidal: de propiedades mecánicas de fluidos complejos a interacción con campos externos”, March 2013

Physical Statistical Seminar, Institute of Physics, University of San Luis Potosí, *invited talk*: “Dinámica coloidal de mezclas de mancuernas y partículas esféricas en una geometría quasi 2D”, August 2013

Gordon Research Conferences of Soft Condensed Matter, *poster*: “Dynamics and Static Structure of Quasi 2D dumbbell-Sphere colloidal mixtures”. New London, New Hampshire EUA, August 2013.

Publications

“A Rheological Study in the Dilute Regime of the Worm Micelle Fluid Made of Zwitterionic Surfactant (TDPS), Anionic Surfactant (SDS), and Brine”, David Lopez-Diaz, Erick Sarmiento-Gomez, Cristina Garza and Rolando Castillo, [*Journal of Colloid and Interface Science*, 348 \(1\), 152-158 \(2010\)](#).

“Microrheology and Characteristic Lengths in Wormlike Micelles made of a zwitterionic surfactant and SDS in brine”, Erick Sarmiento-Gómez, David Lopez-Diaz, and Rolando Castillo, [*J. Phys. Chem. B*, 114, 12193-12202 \(2010\)](#).

“A dynamical light scattering technique and its application in viscoelastic networks in soft matter”, E. Sarmiento-Gomez, J. M. Galvan-Miyoshi and R. Castillo, [*Proc. of SPIE*, Vol. 8011, 801178 \(2011\)](#).

“Rheology and DWS Microrheology of Concentrated Suspensions of the Semiflexible Filamentous fd-Virus”, Erick Sarmiento-Gomez, Danai Montalvan-Sorrosa, Cristina Garza, Jaime Mas-Oliva, and Rolando Castillo, [*Eur. Phys. J. E*, 35, 35 \(2012\)](#).

“The Mean-Square Displacement of Particles in Slightly Interconnected Polymer Networks”, Erick Sarmiento-Gomez, Ivan Santamaria-Holek and Rolando Castillo, [*J. Phys. Chem. B*, 118, 1146 \(2014\)](#).

“Absorption effects in Diffusing Wave Spectroscopy”, Erick Sarmiento-Gómez, Beatriz Morales-Cruzado, Rolando Castillo, [*Applied Optics*, 53, 4675 \(2014\)](#)

“Transition from diffusive to subdiffusive motion in colloidal liquids”, M. J. Sánchez-Miranda, B. Bonilla-Capilla, E. Sarmiento-Gómez, E. Lázaro-Lázaro, A. Ramírez-Saito, M. Medina-Noyola, J. L. Arauz-Lara, [*Soft Matter*, 11, 655 \(2015\)](#)

“Brownian motion of optically anisotropic spherical particles in polymeric suspensions”, Manuel Sánchez Miranda, Erick Sarmiento Gómez, José Luis Arauz Lara, [Eur. Phys. J E, 38, 3 \(2015\)](#)

“Hybrid Algorithm for Simulating the Collimated Transmittance of Homogeneous Stratified Turbid Media”, Beatriz Morales-Cruzado, José Alberto Delgado Atencio, Sergio Vázquez y Montiel, Erick Sarmiento-Gómez, [Biomedical Optics Express, 6, 1726-1737 \(2015\)](#)

“GA-GPUMCML: A New GPU accelerated algorithm for Optical Properties Recovery”, Erick Sarmiento Gómez, Beatriz Morales Cruzado, [OSA Technical Digest, Biomedical Optics 2016, Caneter.JTu3A.13 \(2016\)](#)

“• Short-time dynamics of monomers and dimers in quasi-two-dimensional colloidal mixtures”, E. Sarmiento Gómez, J. R. Villanueva-Valencia, S. Herrera-Velarde, J. A. Ruíz-Santoyo, J. Santana-Solano, J. L. Arauz-Lara and R. Castañeta-Priego, [Phys. Rev. E 94, 012608 \(2016\)](#)

Manuscripts in preparation

Distortion of a temporal profile of light caused by a sample of turbid media
Beatriz Morales Cruzado, Francisco G. Pérez Gutiérrez, Erick Sarmiento Gómez
Send to Optical Engineering