

PROFILE

PhD student in physics and applications of fluid mechanics. Specifically, on the stretching of liquid meniscus phenomena and the generation of capillary jets and droplets at microscale via pressure gradients through nozzles, *flow focusing*, and/or electrohydrodynamic forces, *electrospray*. About applications, particularly interested in the development of sample delivery methods for structural biology analysis. Scaling laws, stability analysis, numerical simulations and experiments are used as research methods.

EDUCATION

04/2015 - present



PhD student in Fluid Mechanics. Universidad de Sevilla.

Main supervisor: Prof. Dr. Alfonso M. Gañán Calvo (details in references)

Co-supervisor: Prof. Dr. José María Montanero Fernández

Center: Universidad de Sevilla (Spain)

09/2008 – 04/2014



BSc + MSc in Engineering Physics, Mechanical Engineering. Escuela Técnica Superior de Ingeniería.

Master's Thesis: Non-ideal and non-linear vibrations of mechanical systems.

Supervisor: Prof. Dr. Jaime Domínguez Abascal

Center: Universidad de Sevilla (Spain)

WORK EXPERIENCE

04/2015 - present



Research Assistant. Ministerio de Economía, Industria y Competitividad. Gobierno de España.

Principal Investigator: Prof. Dr. José María Montanero Fernández

Center: Universidad de Extremadura (Spain)

04/2014 - 12/2014



Graduate Engineering Trainee. Abengoa.

Development of technical proposals within international projects for the department of Water & Environmental Technologies. Campus Palmas Altas, Sevilla (Spain)

JOURNAL PUBLICATIONS

Authors	<u>Francisco Cruz-Mazo</u> , J. M. Montanero, A. M. Gañán-Calvo
Title	Monosized dripping mode of axisymmetric flow focusing
Journal	Physical Review E, 94, 053122
Publisher	American Physical Society (United States of America)
Impact Factor	2.252 (6 of 53 in category of Physics, Mathematical) (Source: Journal Citation Reports, 2015)

CONTRIBUTIONS TO CONFERENCES

Authors	<u>Francisco Cruz-Mazo</u> , J. M. Montanero, A. M. Gañán-Calvo
Title	The production of monodisperse collections of drops with gaseous axisymmetric flow focusing
Type	Oral presentation
Congress	11 th European Fluid Mechanics Conference, Seville, Sept. 12-16, 2016 (Spain)
Organizator	Euromech

TEACHING – TRAINING EXPERIENCE

09/2016 - present



Teaching Assistant in the BSc-degree course “Fluid Mechanics”. Escuela de Ingenierías Industriales.

Academic Coordinator: María Guadalupe Cabezas Martín

Center: Universidad de Extremadura

SKILLS

Experimentation	Characterization of microflows via high-speed imaging and diffraction laser techniques. Measurement of mechanical and electrical magnitudes of fluids. Fabrication of microfluidic prototypes.
Numerical Simulations	Matlab, Gerris.
Theoretical Background	Dimensional analysis and scaling Laws. Stability analysis. Non-ideal and non-linear vibrations. Electrohydrodynamics. Droplet microfluidics.
CAD-CAM	Catia
Languages	Spanish (mother tongue), English (advanced), French (basic), German (basic)

REFERENCES

Prof. Dr. Alfonso M. Gañán-Calvo

Chair of Fluid Mechanics

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