UNIVERSIDAD DE GRANADA

Departamento de Física Aplicada

Miguel Ángel Fernández Rodríguez

Currently I am a postdoctoral researcher "Juan de la Cierva - Incorporación", that joined the Department of Applied Physics in September 2020, working in the Laboratory of Surface and Interface Physics, in the Biocolloids and Fluid Physics group.

• I have published 30 JCR articles, with 413 citations in WoS and 1 chapter in Elsevier's Encyclopedia of Interfacial Chemistry.
• H 12 Index (WoS).
• 8 articles in decile D1 (Nature, Nature Communications, Accounts of Chemical Research, ACS Nano, Nano Letters, Microscopy and Microanalysis), 21 in Q1 (Nanoscale, Soft Matter, etc), being corresponding author in 5 of them, including the one published in Nature.
• At ETH, I supervised 1 Master's thesis, 1 Bachelor's thesis, 2 Master's projects, and 2 Bachelor's projects.
• At UGR I am supervising a Bachelor's thesis this course 2020-2021.

I obtained my PhD degree in Physics from the University of Granada in December 2015. I have specialized in Materials Science. During my master's degree in Colloid and Interface Science and Technology I developed a laser patterning technique to increase the osseointegration of titanium implants. During my PhD, in a Project of Excellence of the Junta de Andalucía, I characterized the greater interfacial activity of Janus nanoparticles at liquid interfaces. I started my postdoc career at ETH-Zurich with a Swiss Government Excellence PostDoc Scholarship for the fabrication and characterization of vertically aligned nanowires by soft colloidal lithography, and also on the sequential capillary assembly of active colloids, controlling their trajectories with feedback in real time, in collaboration with IBM-Zurich. In the University of Barcelona, I worked on the soft colloidal lithography technique to increase the efficiency of solar panels thanks to a Marie Curie Beatriù de Pinòs.

The techniques in which I am trained are AFM, FIB-SEM, drying by supercritical CO2 and the FresCa cryo-SEM technique (Freeze Fracture Shadow Casting cryo-SEM), where I characterize the contact angle of individual nanoparticles that protrude from a cryogenic propane jet-vitrified water/oil surface, thanks to the shadows casted by each nanoparticle, through cryo-SEM. I also trained in conventional lithography with

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the Deep Reactive Ion Exchange in the BRNC cleanroom at IBM-Zurich. My current objective is to study the physical fundaments of the self-assembly of soft colloids at interfaces, and their deposition on substrates for soft colloidal lithography, to produce vertically aligned silicon nanowires, as superhydrophobic coatings and to expand their use as a lithography technique in clean rooms.

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