UNIVERSIDAD POLITÉCNICA DE MADRID

Expression of Interest – UPM Supervisor

Marie Skłodowska Curie Action –Postdoctoral Fellowship 2022 (MSCA-PF-2022)

Contact Person/Scientist in charge *(datos del IP del grupo de investigación o responsable científico)*	**Name**	Stefanos
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Department /Institute /Centre *(datos del centro/departamento donde estaría ubicado el investigador a contratar)*	**Name**	Department of Civil Engineering: Hydraulics, Energy and Environment, Environment, Coast and Ocean Research Laboratory
	Address	c/Profesor Aranguren 3, 28040, Madrid, Spain
	Province	Madrid
Research Area *(en base a las 8 áreas científicas establecidas en MSCA. Se podrán seleccionar entre una y tres áreas científicas por EOI)*		Information Science and Engineering (ENG) Life Sciences (LIF) Environment and Geoscience (ENV) Chemistry (CHE)
Brief description of the Centre/Research Group *(Max. 1600 caracteres con espacio: información sobre el centro / grupo de investigación / personal científico, destacando los aspectos más relevantes de los mismos. Incluir URL si es posible.)*		The Research Group "Environment, Coast and Ocean Research Laboratory" (https://ecorelupm.es/) of the Universidad Politécnica de Madrid (UPM), led by Prof. Dr. Vicente Negro. This group is currently formed by 15 Professors, 5 PhD students, 2 laboratory technicians and a considerable number of undergraduate students who are active initiated in research. The group develop its activities in the following areas of research: • Blue Economy and Climate Change • Climate, Marine Climate and their Changes • Land and Urban Floodability: Flooded Zones Management • Maritime Energy • Coastal and Sensitive Area Planning and Management • Harbor Planning: Maritime and Land Transportation • Building Processes, Materials and Reliability in Marine Works • Ports and Harbors, Sustainable Transport and Coastal Planning Development • City-Harbor Relationships: Urban Seafront Planning • Advanced water and wastewater treatment by physicochemical methods • Water reuse after Advanced Oxidation Processes • Nutrient elimination by aerobic and anaerobic systems • Development of sustainable energy processes in urban water and energy management • Modeling of sustainable construction and development The research lines offered are on "Sanitary and Environmental Engineering", and include: i) development of novel sustainable water treatment processes, ii) the fundamentals governing microorganism disinfection, iii) photochemistry and photobiology of natural waters, and iv) Urban and industrial wastewater treatment by Advanced Oxidation Processes.

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Project description *(Max. 1800 caracteres con espacio: breve descripción sobre el proyecto /línea de investigación en el que se acogería al investigador/a Marie S.Curie.)*	Interested candidates can be integrated in either of the following active projects: • **Development of novel, sustainable, urban and industrial (waste)water treatment processes:** The lab develops new Advanced Oxidation and Reduction Processes destined for the elimination of non-biodegradable organic contaminants from effluents of industrial or urban origin, with special attention to their toxicological safety. • **Elimination of contaminants of emerging concern (CECs):** Our lab intends to meet the recent EU guidelines for the elimination of persistent organic compounds (e.g. PFAS) and prevent the spread of Antibiotic Resistant Bacteria (ARB) and their genes (ARGs) from aquatic environments.. • **The fundamentals governing microorganism disinfection:** Our most common targets are bacteria, viruses and yeasts, and the mechanistic interpretation takes place by cultivation-based methods, as well as molecular biology (use of mutants, PCR/electrophoresis) and biochemical methods. • **Photochemistry and photobiology of natural waters.** The photo-chemical cycle in surface water leads to the degradation of organic compounds and the elimination of pathogens. Our lab focuses on the fate of contaminants in different types of water (sea, lake/river), environments (tropical, moderate, or polar), and we study their attenuation by the generated reactive species. • **Development of drinking water treatment processes for developing countries:** Solar Disinfection (SODIS) is a WHO-approved treatment method, whose disinfection mechanisms, are not completely elucidated. Our lab studies SODIS and the potential ways to apply it in the field, as well as the possible enhancements by simple additives.
Applications: documents to be submitted and deadlines *(Indicar qué documentación deberá remitir el /la investigador/a interesado/a al centro para establecer el contacto: CV, letter of motivation, letter of references, etc., así como la fecha límite para el envío de la misma. Recomendado: Hasta finales de abril 2022)*	All applications will be assessed on case-by-case basis. After receipt of the CVs, the candidates will be contacted for an interview. Include reference letters and full academic details. **Deadline 30.04.2022**