

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

Contact Person/Scientist in charge <i>(datos del IP del grupo de investigación o responsable científico)</i>	Name	Javier
	Surname	Galeano
	Email	javier.galeano@upm.es
Department /Institute /Centre <i>(datos del centro/departamento donde estaría ubicado el investigador a contratar)</i>	Name	Complex System Group/ Departamento de Ingeniería Agroforestal/ ETSIAAB
	Address	Avda Puerta de Hierro 4
	Province	Madrid
Research Area <i>(en base a las 8 áreas científicas establecidas en MSCA. Se podrán seleccionar entre una y tres áreas científicas por EOI)</i>		Life Sciences (LIF) Mathematics (MAT) Physics (PHY)
Brief description of the Centre/Research Group <i>(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.)</i>		<p>The GSC-UPM is made up of a multidisciplinary team of 20 researchers. Our training allows us to carry out high-quality research work in the interdisciplinary area of Complex Systems, in collaboration with similar groups in the US, South America, and Europe.</p> <p>The GSC has extensive experience in areas related to complex systems, massive data processing, non-linear dynamics, chaos, and is strongly interdisciplinary, conducting research in areas as varied as physics, mathematics, optics, sociology, medicine, and biology.</p> <p>Our team is interested in both medical and ecological perturbations, and most of the time both aspects have a connection through the human microbiota ecosystem. We have modelled different situations and/or pathologies related to bacterial composition or functionality and their ecological interactions. On this issue, we collaborate closely with the Ramón y Cajal Hospital, particularly with the Department of Microbiology who are experts in pioneering techniques to modify human microbiota without using antibiotics, such as the transplantation of stool from a healthy subject. We have used different mathematical tools from population dynamics equations to Agent-Based Models, and Machine Learning Techniques, achieving to replicate data obtained in vivo.</p>
Project description <i>(Max. 1800 caracteres con espacio: breve descripción sobre el proyecto /línea de investigación en el que se acogería al investigador/a Marie S.Curie.)</i>		<p>The use of immunosuppressive therapies is expensive and, depending on the disease and the particular response of the patient, the chances of success are very low. The pathologies on which these therapies are focused are skin and lung cancer, and infectious and rheumatological diseases, achieving absolute cure when the patient responds adequately. Recent studies have demonstrated the contribution of the microbiota on these therapies response, and our objective is to predict that to avoid unnecessary failures and optimizing health resources. We also intend to model the ecological events that occur in the intestinal microbiota of a non-responder to immunosuppressive therapy after receiving a stool transplant from a responder. Our lines of research are aimed at personalized medicine through the rules that govern complex systems, especially those</p>



Expression of Interest – UPM Supervisor

corresponding to the microorganisms that coexist with us and that are perfectly modifiable.

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)

Cv

Motivation letter

Deadline: 9th May 2022