UNIVERSIDAD POLITÉCNICA DE MADRID

Expression of Interest – UPM Supervisor

Marie Skłodowska Curie Action –Postdoctoral Fellowship 2023 (MSCA-PF-2023)

Contact Person/Scientist in charge	**Name**	Stephan
	Surname	Pollmann
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Department /Institute /Centre	**Name**	Centro de Biotecnología y Genómica de Plantas (UPM-INIA/CSIC)
	Address	Campus de Montegancedo, Autovía M-40 (km 38)
	Province	Madrid
Research Area		Social Sciences and Humanities (SOC) Economic Sciences (ECO) Information Science and Engineering (ENG) Environment and Geoscience (ENV) **Life Sciences (LIF)** Mathematics (MAT) Physics (PHY) Chemistry (CHE)
Brief description of the Centre/Research Group		The host group of Prof. Stephan Pollmann is located at the Centro de Biotecnología y Genómica de Plantas (UPM-INIA/CSIC), one of only 15 centers of excellence Severo-Ochoa in Life Sciences in Spain. The CBGP is an internationally renowned Plant Science Center that offers all necessary infrastructure to perform research at an internationally visible and competitive level. Moreover, the CBGP maintains close contact with the private sector, which facilitates interested scientists to collaborate with agricultural industry-related companies or to improve their skills in economic aspects, including patent legislation. For example, UPM_INNOVATECH and ActuaUPM are business programs sponsored by the Universidad Politécnica de Madrid (UPM) that help researchers to create startup businesses by providing legal advice and financial support. Detailed information on the CBGP can be found under: www.cbgp.upm.es. For more than ten years, the Pollmann lab is located at the CBGP, performing internationally recognized, ambitious projects in the context of plant hormone crosstalk during plant stress responses and in plant-microbe interactions, respectively. The research group uses different methodological approaches to achieve their goals ranging from general molecular biology and plant genetics to transcriptomics (RNA-seq), live cell imaging, and advanced mass spectrometry. For more detail see: www.pollmannlab.com.

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Project description	The agricultural productivity of many crops can be considerably improved through the interaction with beneficial microbial symbionts that promote plant productivity and stress tolerance. Environmental stresses can compromise the interactions of plants with their beneficial symbionts. Numerous studies published over recent years suggest that abiotic stresses can negatively affect the abundance and/or functionality of plant beneficial microbes. The molecular communication mechanisms by which plants and their beneficial microbes adjust their metabolic and physical interactions to ever-changing environmental condition remain largely elusive. Recent studies show that plant amino acid metabolism is closely correlated with stress signaling and defense responses at various levels in plants, which also affects plant-microbe interactions. The direct negative effect of stresses on microbes may also contribute to the environmental regulation of these mutualisms with plants. The threatening current global climate change scenario, which predicts a medium temperature increase of 2-5ºC, implies the compelling necessity to further our knowledge of the molecular basis of plant–microbe communication. We want to investigate the environmental perturbation of plant–microbe interactions under abiotic stress conditions, with particular emphasis on elucidating the underlying communication modules and plant signaling pathways associated with plant and microbial stress defense responses. As a very valuable tool, we developed a high-throughput analysis platform that allows the monitoring of the beneficial effect of plant–microbe interactions. Currently, we are working on the transcriptional and metabolic in- and outputs that control plant-microbe interaction.
Applications: documents to be submitted and deadlines	Please, submit both a CV and a motivation letter until the 30th April 2023.