Marie Skłodowska Curie Action – Postdoctoral Fellowship 2023
Expression of interest – Hosting offer
(MSCA-PF-2023)

Contact Person/Scientist in charge	
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Research Area		
	✓ Social Sciences and Humanities(SOC)	Life Sciences (LIF)
	Economic Sciences (ECO)	✓ Mathematics (MAT)
	✓ Information Science and Engineering (ENG)	✓ Physics (PHY)
	Environmental Sciences and Geology (ENV)	Chemistry (CHE)

Brief description of the Centre/Research Group	The Grupo de Sistemas Complejos (GSC) is an interdisciplinary research group in Complex Systems formed by experienced Professors, and young postdocs and Ph. D. students of several schools of the Universidad Politécnica de Madrid, which creates an exciting environment and an enthusiastic atmosphere, always open to new ideas.
	The GSC has a long experience in the study of (classical and quantum) chaos, Complex Systems and nonlinear Dynamics in a several different fields ranging from fundamental Science (Mathematics, Physics and Chemistry), to Sociology. More recently, a new research line on Complexity has been implemented in order to study Complex Networks and Big Data using the latest methodologies (Optimization Algorithms, Machine Learning, Deep Learning…).
	So far, the members of the group have published over 200 articles in journals indexed in the JCR, such as Sci. Reports, Phys. Rev. Lett., Phys. Rev. E, PCCP and Chaos, among others. Our research is financed by different public institutions (European Comission, The Spanish Ministry of Science, Innovation and Universities, UPM...) and private companies, and is developed in collaboration with different Spanish (Universidad Autónoma de Madrid, Instituto de Ciencias Matemáticas, ...) and foreing (Johns-Hopkins University, Loughborough University, Humboldt-Universität zu Berlin...) institutions.
	For further information, visit our webpage at: www.gsc.upm.es/gsc3
Project description	The work of the research group in the field of Complex Networks and Data Science is focused on studying social dynamics by analyzing large datasets adopting a interdisciplinary approach. We build networks of interactions between humans and analyze their topology and the dynamics that take place in those systems from the perspective of Network Science, but we also adopt complementary tools from fields like statistical analysis or signal processing. This holistic approach allows us to gain a wider insight of the social systems under study.
	Our main topics of interest are the study of social polarization and segregation in complex networks, processes of information diffusion and the development and characterization of network metrics. We also work in semantic and sentiment analysis of text samples.
	The research line to which the researcher would join is the study of social polarization from the data obtained from online social networks, both in dichotomous and multipolar contexts.

	The project consists of applying the metrics that we have developed in the research group to quantify the degree of polarization in different social spheres, such as political elections or critical issues of social interest (gender, social inequality, human rights, sustainability, climate change, etc.). Likewise, we want to adapt and apply our methodology of polarization measures, including semantic and sentiment analysis of messages on social networks. Expertise in data science, networks science and IA will be highly appreciated.
Applications: documents to be submitted and deadlines	The applicant should submit (as soon as possible, and no later than **April 30th 2023**) the following documents: - Letter of motivation - Curriculum vitae - Two reference letters - A brief summary of up to three of the most important articles or patents,