

**Marie Skłodowska Curie Action –Postdoctoral Fellowship 2024
(MSCA-PF-2024)**

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Department /Institute /Centre	Name	Centro de Estudios e Investigación para la Gestión de Riesgos Agrarios y Medioambientales (CEIGRAM)
	Address	P.º de la Senda del Rey, 13, Moncloa - Aravaca, 28040 Madrid
	Province	Madrid
Research Area		<p>Environment and Geoscience (ENV)</p> <p>Mathematics (MAT)</p> <p>Social Sciences and Humanities (SOC)</p>
Brief description of the Centre/Research Group		<p>CEIGRAM, Research Centre for the Management of Agricultural and Environmental Risks, is one of the 19 research centres of the Universidad Politécnica de Madrid, the best Spanish technological university. CEIGRAM is a centre of reference and knowledge generation that carries out research and develops methodologies to respond to the growing concern for the agricultural sector's productive, market, and environmental risk management strategies.</p> <p>In particular, the Complex System research group (CS) is a multidisciplinary team of 20 researchers with extensive experience focusing on complex network data analysis, nonlinear dynamics and complexity in biology and sociology. Our collaborative efforts extend to research groups in the USA, South America, China and Europe. CS trains doctorates and hosts visitors from various universities and countries. This activity facilitates their international mobility and integration into companies and universities.</p> <p>Our forte involves working with complex and dynamic systems, leveraging a comprehensive toolkit that seamlessly blends linear and nonlinear methodologies. This unique approach positions us to tackle challenging and intricate problems effectively. By adopting an interdisciplinary perspective and utilising state-of-the-art methodologies, we have consistently demonstrated our ability to address complex issues at the intersection of agriculture, sociology, and the environment.</p> <p>https://ceigram.upm.es/</p>

Project description

Dual Approach Network Analysis for Local Food Waste Disposal
DUALFOOD



This project aims to understand the local food waste disposal system, surpass its limits and barriers, and propose a municipal strategy for further expansion in line with the Milan Urban Food Policy Pact (signed by Madrid) and the sustainable development goals.

This investigation will map the social network of Madrid (Spain), which disposes of food waste locally through cognitive maps, and apply social network analysis. This will be done by collaborating with the 9 composting nodes of the network of urban composting systems and the network of Madrid urban vegetable gardens with more than 60 vegetable gardens, as well as other composting networks such as schools, municipal food and garden waste programs, etc. They all compost local food waste and/or plant materials and dispose of them in urban vegetable gardens and parks. Social network analyses allow us to visualise the structure and the interconnections of the network's different actors (or nodes). Various metrics will be examined, including the number of ties, network density, and inclusiveness.

Furthermore, we will apply the social network analysis knowledge to propose an optimised future network of composting systems in Madrid, combining a GIS database and back propagation artificial neural network. The synergy of these technologies has previously demonstrated success in optimising energy consumption. By extending this methodology to the context of composting systems, the project aims to provide a comprehensive proposal for an adaptative composting network to address the current challenges of food waste management and greenhouse gas emissions, aligning with the vision of the Milan Urban Food Policy Pact for sustainable cities.

Applications: documents to be submitted and deadlines

CV, letter of motivation, PhD diploma.
Deadline: 30th April 2024