

PhD position: Sustainable ubiquitous RF electronics on biodegradable and compostable substrates targeting a circular economy in Internet of Things (IoT)



UNIVERSIDAD
DE GRANADA



Department of Electronics and Computer Technology.
Universidad de Granada (Spain).



We are looking for an MSc. or MEng. graduate interested in pursuing a PhD as part of an exciting research project to be developed within the Pervasive Electronics Advanced Research Laboratory (PEARL) at the University of Granada (Granada, Spain). This project focuses on **demonstrating the feasibility of developing next-generation radiofrequency (RF) modules for wireless communication systems in IoT using biodegradable and compostable materials, with the goal of promoting a sustainable circular economy.** You will join a multidisciplinary team that encourages creativity, critical thinking, and excellence. Additionally, you will have the opportunity to contribute to the **comprehensive characterization of cutting-edge biodegradable substrates and conductive inks for RF applications, with the objective of driving progress towards circular electronics.**



Conceptual image illustrating COMPOSTRONICS.

Main aims of the PhD position:

Advanced characterization of suitable biodegradable/compostable substrates for high-frequency (HF) printed electronics: You will conduct HF characterization of potential sustainable substrates, analyzing the complex dielectric behavior of biodegradable materials across a wide frequency range.

Identification of appropriate sustainable inks for future RF printed circuits: You will focus on characterizing the electrical conductivity at RF, sheet resistance, printability, solderability, as well as the curing and drying properties of potential eco-friendly conductive inks, ensuring good adhesion to the target substrates.

CAD modeling and electromagnetic co-simulations: You will work on extracting the relevant parameters describing microwave technology based on biodegradable/compostable materials through experimental measurements. These findings will contribute to building a CAD library for electromagnetic simulations of novel sustainable RF technologies.

Design and manufacturing sustainable printed circuits operating at high frequency: You will design, fabricate, and characterize multiple prototypes to demonstrate the feasibility of manufacturing sustainable printed RF electronics.

What Are We Looking for in You?

We are seeking highly motivated candidates who are passionate about science and pushing the boundaries of knowledge, committed to advanced technology research focused on sustainability and the circular economy, with a strong interest in electronics and innovative materials.

Requirements:

- BSc./BEng. and MSc./MEng. Degrees in Electronic Engineering, Telecommunications, Physics, or related fields.
- Prior experience with electronic characterization lab equipment, printed electronics, RF circuit layout design, and electromagnetic simulation is an advantage.
- Interest in the Internet of Things (IoT), sustainable electronics, circular economy, printed circuits, and RF/microwave applications.
- Ability to work effectively in a team, communicate ideas clearly, and propose innovative solutions.

We Offer:

- A 4-year PhD contract with funding for international research stays.
- A first-class research environment with access to cutting-edge technologies and laboratories.
- Opportunities to collaborate with international researchers and experts.
- Participation in scientific conferences and international collaboration networks.
- Support for both professional and academic development.
- The chance to contribute to the development of innovative sustainable technologies for future wireless communication electronics in IoT.

How to Apply?

To apply or to obtain further information, please submit your CV, specifically highlighting your expertise in relation to the desired skills listed above, to Francisco Pasadas (fpasadas@ugr.es).