University of Perugia
Department of Engineering

Seminars Series
Talks on Electronics – 2025
a cycle of seminars on Electronics, Integrated Circuits, Radio-Frequency and related topics

Wednesday December 3rd, 2025
14:30 – 16:30
Aula 11 - Triennio

Open Source EDA Tools: a New IC Design Perspective

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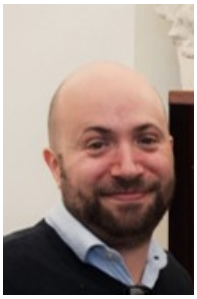
Abstract – The design of Radio Frequency Integrated Circuits (RFICs) has traditionally been characterized by complex methodologies and reliance on proprietary Electronic Design Automation (EDA) tools. This seminar will explore the shifting landscape of RFIC development, with a focus on two pivotal areas: recent advancements in ARIS (Advanced Research on Integrated Systems) for RF circuits and the burgeoning movement toward Open Source EDA tools. We will begin by discussing the key developments and innovations within the ARIS domain that are pushing the boundaries of integrated radio-frequency systems, addressing the ever-increasing demand for higher frequencies, greater integration, and improved energy efficiency. The second part of the seminar will shift the focus to the critical topic of open source design tools for RFICs. We will present the significant challenges currently faced by designers adopting open source flows—such as lack of specialized RF models, integration difficulties, and verification hurdles—along with a survey of the recent developments and community-driven initiatives successfully tackling these issues. Finally, the seminar will showcase concrete design examples and use cases where open source tools are being leveraged to accelerate innovation and lower the entry barrier for RFIC prototyping and research. This transition is essential for fostering wider collaboration and securing the future of European semiconductor autonomy.



Giulio Brancali received his Bachelor's degree in Electronic Engineering from Sapienza University of Rome, Italy, in 2021 and his Master's degree in Electronic Engineering for IoT Applications at the University of Perugia, in 2024 .Currently, he is a Research Fellow at the University of Perugia, where he is engaged in research on Millimeter-Wave Integrated Electronics Circuits for Active Reflective Intelligent Surfaces . His primary research interests encompass planar antenna design and the validation of open-source tool environments for the design of Active RIS mm-wave integrated circuits