



PhD in INGEGNERIA DELL'INFORMAZIONE / INFORMATION TECHNOLOGY - 41st cycle

Research Area n. 2 - Electronics

**THEMATIC Research Field: HIGH-SPEED ADCS WITH LARGE TIME-INTERLEAVING
FACTOR FOR MM-WAVE TRANSCEIVER**

Monthly net income of PhDscholarship (max 36 months)

1400.0

In case of a change of the welfare rates during the three-year period, the amount could be modified.

Context of the research activity

Motivation and objectives of the research in this field

This research focuses on mixed-signal integrated circuit design, specifically on high-speed, multi-giga-sample-per-second Analog-to-Digital Converters (ADCs). Our project aims to explore the design of hybrid pipeline successive-approximation-register (SAR) ADCs with a large interleaving factor of eight or more, targeting a moderate resolution of 10 to 12 bits. The main challenge is to interleave these ADCs without significantly degrading the overall performance of the single-ADC unit.

Methods and techniques that will be developed and used to carry out the research

The analysis will be carried out using system theory and dedicated tools for system analysis. Then, the functionality and performance of the new conceived system will be demonstrated in a chip. Finally, the testchip will be experimentally verified.

Educational objectives

The student will be trained in different disciplinary areas such as behavioral modeling, integrated circuit design, analogue and digital design, chip assembly, testing measurements.



Job opportunities	Designer with major semiconductor companies and research centers.
Composition of the research group	4 Full Professors 1 Associated Professors 5 Assistant Professors 10 PhD Students
Name of the research directors	Prof. Carlo Samori

Contacts
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Additional support - Financial aid per PhD student per year (gross amount)	
Housing - Foreign Students	--
Housing - Out-of-town residents	--

Scholarship Increase for a period abroad	
Amount monthly	700.0 €
By number of months	6

Additional information: educational activity, teaching assistantship, computer availability, desk availability, any other information
<u>EDUCATIONAL ACTIVITIES</u> (purchase of study books and material, including computers, funding for participation in courses, summer schools, workshops and conferences). <u>TEACHING ASSISTANTSHIP</u>: availability of funding in recognition of supporting teaching activities by the PhD student There are various forms of financial aid for activities of support to the teaching practice. The PhD student is encouraged to take part in these activities, within the limits allowed by the regulations. <u>COMPUTER AVAILABILITY</u>: 1st year: Yes 2nd year: Yes 3rd year: Yes <u>DESK AVAILABILITY</u>: 1st year: Yes 2nd year: Yes 3rd year: Yes