



PhD in INGEGNERIA AEROSPAZIALE / AEROSPACE ENGINEERING - 39th cycle

**PNRR 117 Research Field: RF & RADIOMETRIC MODEL OF SPACE MICROWAVE
RADIOMETERS FOR EARTH OBSERVATION**

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

These space missions provide critical information to support a wide range of applications, including environment protection, management of urban areas, regional and local planning, agriculture, forestry, fisheries, health, transport, climate change, sustainable development and civil protection. For the above purpose, the satellite missions are designed to deliver systematic measurements of Earth's oceans, land, ice and atmosphere to monitor and understand large-scale global dynamics.

The objectives of the proposed research activity are relevant to the RF and radiometric model design, development and verification of space Microwave Radiometers (MWR Instruments) for Earth Observation satellite missions.

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

The activities consist in establishing, developing and maintaining the mathematical models for MWR performances (sensitivity, accuracy and stability) and the MWR (forward and inverse model) as the basis for the Ground Prototype Processor. Moreover, defining the algorithms and equations for representing the MWR operations

Educational objectives

The main educational objectives are:



	<ul style="list-style-type: none"> •the acquisition of a solid background in cutting-edge methodologies for the modelling of Microwave Radiometer •the development of skills in advanced numerical methods, software engineering and data-analytics techniques •the development of key capabilities in the fervent area of microwave instruments for Earth observation
Job opportunities	<p>The research will be developed in collaboration with OHB company, which is leading the development of different Microwave Radiometers for Earth observation missions. This will be a great source of expertise in the field of Microwave Radiometers and will offer networking opportunities for the candidate. For this purpose, the program is fostering industrial and academic excellence in the field, which will need the long-term support of experienced professionals.</p>
Composition of the research group	<p>0 Full Professors 2 Associated Professors 2 Assistant Professors 9 PhD Students</p>
Name of the research directors	Prof. Mauro Massari

Contacts
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Additional support - Financial aid per PhD student per year (gross amount)	
Housing - Foreign Students	--
Housing - Out-of-town residents (more than 80Km out of Milano)	--

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



National Operational Program for Research and Innovation	
Company where the candidate will attend the stage (name and brief description)	OHB Italia
By number of months at the company	6
Institution or company where the candidate will spend the period abroad (name and brief description)	To be defined
By number of months abroad	6

Additional information: educational activity, teaching assistantship, computer availability, desk availability, any other information

The PhD candidate will receive a desk, possibly through a hot-desking procedure, and a personal computer, if needed. Apart from the compulsory ones, the PhD candidate will have the opportunity to follow additional courses and receive economic support to attend summer schools and participate in conferences. There will be the possibility of paid teaching assistantship.