

ELECTRICAL, ELECTRONICS AND COMMUNICATIONS ENGINEERING

CRT/DET - Advanced radio-navigation techniques for the space and moon environment

Funded By	FONDAZIONE CRT CASSA DI RISPARMIO DI TORINO [Piva/CF:06655250014] Dipartimento DET
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Context of the research activity	Satellite-based radionavigation systems and their use in space and lunar environments
Objectives	<p>The research activity will be carried out within the framework of studies related to the development of the navigation and communication system for the lunar environment, which is a fundamental part of the Moonlight program. This system is highly innovative due to the technologies involved, the various possible system architectures, and the lunar environment, which has propagation characteristics significantly different from those of Earth. The doctoral candidate's research will focus on the study of satellite navigation techniques for the lunar environment, in terms of signal design (considering all the trade-offs that a lunar system entails), ranging and positioning techniques, and integration with the part of the system dedicated to communications.</p> <p>The activity will include the development of appropriate signal simulation tools that allow for the evaluation of performance in terms of positioning accuracy for different architectural solutions, as well as the simulation of lunar user navigation units.</p>
Skills and competencies for the development of the activity	Digital signal processing, electrical communications, radio positioning systems