

# MECHANICAL ENGINEERING

## Lazzero Tecnologie - DESIGN - development of an energy supply technology for a lunar base using wireless power transmission

<b>Funded By</b>	LAZZERO TECNOLOGIE S.R.L. [Piva/CF:05938990016]
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<b>Context of the research activity</b>	The DESIGN project, financed by ASI, intends to study the development of a technological frame for the development of a wireless power transfer methodology to supply energy to a lunar base during the 14 days long lunar night. Within this context the proposed topic regards the analysis of the mission, the definition of the requirements and the analysis, modeling and design of some key components of the complete system.
<b>Objectives</b>	The power supply system to be developed is composed by a set of satellites orbiting the Moon, each of which should be equipped with solar panels to harvest energy from the Sun, a battery pack to store it and finally a high power laser source to transmit it to a receiver based on the lunar surface. Within this frame a number of task must be carried out, including the analysis of the mission, the definition of the requirements for each components and the design of the receiver and of its thermal management system. The proposed grant is financed by Lazzero Tecnologie, a partner of the DESIGN project, and is focused on the development of the points described above. The Ph.D. student will work in team with other Ph.D students and researchers in order to develop the preliminary design of the complete system.
<b>Skills and competencies for the development of the activity</b>	A background in aerospace, mechanical or mechatronic engineering is strictly required. The knowledge of current modeling and simulation tools as Matlab/Simulink should be a plus