



POLITECNICO MILANO

The Department of Aerospace Science and Technology at Politecnico di Milano, Milan, Italy, is hiring one **Early Stage Researcher** (ESR13) as part of the Marie Skłodowska-Curie Actions (MSCA) Innovative Training Network (ITN) Stardust-R.

Job Description

Title: Small spacecraft for minor bodies exploration and exploitation.

Description: Within Stardust-R, the ESR will cover the activities involving autonomous Guidance, Navigation, and Control of low-resources systems for exploration and exploitation of small bodies. The scenario considers exploration and required prospection in view of a possible exploitation achieved through specific missions and related science realised with interplanetary CubeSats. Autonomous deep-space and close proximity navigation, as well as autonomous orbit guidance and control will be the fundamental areas of research. The activities foresee the design and execution of hardware-in-the-loop experiments using breadboards.

Objectives: To develop models for the simulation of orbit-attitude motion of under-actuated space systems; To formulate novel astrodynamics methods accounting for low-resources, limited-authority space systems; To assess operations, autonomy, and navigation accuracy of small satellites in the proximity of small bodies; Study cases: 1) stand-alone, deep-space CubeSat to a minor body, 2) CubeSat released in situ by a mothership about a minor body.

Requirements: All qualified candidates irrespective of gender or nationality are welcome to apply as long as the following conditions are fulfilled. A successful candidate *must* 1) hold a Master degree in Engineering, or equivalently Computer Science, Mathematics, Physics, Astronomy; 2) master at least one computing language (C, Fortran, Matlab, Python); 3) be familiar with hardware-in-the-loop simulation; 4) have excellent written and oral communication skills.

MSCA eligibility criterion: At the time of appointment applicants should have no more than 4 years experience after graduation and should not have resided in Italy for more than 12 months in the last 3 years immediately before the appointment.

Applications: Interested applicants must send to francesco.topputo@polimi.it (cc info@stardust-network.eu): a) CV following the template available at [this link](#); b) transcripts and certificates; c) two letters of reference (preferably sent directly from the referees); d) cover letter explaining their motivation and research interests.

Benefits: The selected ESR will be recruited on a fixed term staff contract with salary, having the opportunity to be enrolled in the PhD program in Aerospace Engineering at Politecnico di Milano.

Selection: The selection will be on the basis of the CV and an interview (possibly via Skype); the committee might decide to propose a research project as an exercise to be performed within a limited amount of time. Shortlisted candidates will be informed.

Deadline: 31 March 2019

Starting date: 1 November 2019

Duration: 3 years

Gross yearly salary: € 48,000-54,000, free of labour taxes.

Contact: Dr. Francesco Topputo (francesco.topputo@polimi.it) or info@stardust-network.eu