IGOSat Project

Internship proposal - 2018

Ground/Space Telecommunication link for IGOSat

Skills, key-words: Onboard Software, radio-frequencies, ground station, antenna, modulation, coding, AX-25.

Study level: 4th Year/ Master Degree

Duration : 5 - 6 months

Stipend : 570 € / months

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Internship description :

The Laboratories of Excellence (LabEx) UnivEarthS [1], set up by AIM (Astrophysics, Instrumentation and Modelling [2]), APC (AstroParticle and Cosmology [3]) and IPGP (Institut de Physique du Globe de Paris [4]) of Paris Diderot University [4], allowed the emergence of cross-cutting projects in these three laboratories.
Taking advantage of the strong involvement of these laboratories in numerous experiments and space instruments, a nanosatellite project developed by student was initiated by the LabEx UnivEarthS in October 2012, with the technical and financial support of the CNES (French Space Agency) and the Paris Diderot Space Campus [6]. More specifically, it is a question of developing, by 2019, a 3-unit CubeSat satellite (i.e. with a size of 10x10x30 cm [7]). This satellite, called **IGOSat**, will carry 2 payloads (a dual frequency GPS to study the ionosphere and a scintillator for the study of radiation belts)

The Telecommunication link between the satellite and the ground station in Paris is currently under development. The Telecommunication flight software is almost finished, as well as the ground station. The objective of the internship is to integrate and test all the elements of the chain, in interaction with interns responsible for the ground segment software and for the onboard flight software.

In interaction with a team of several students, engineers and scientists, the student needs autonomy, precision and a comprehensive vision of data transmission.

Bibliography

[1] LabEx UnivEarthS : http://www.univearths.fr
[2] Laboratoire AIM : http://irfu.cea.fr/Sap/
[3] Laboratoire APC : http://www.apc.univ-paris7.fr
[4] Institut de Physique du Globe : http://www.ipgp.fr
[5] Université paris Diderot : http://www.univ-paris-diderot.fr
[6] Campus Spatial Paris Diderot : http://www.campusspatial-paris.fr
[7] CubeSat Informations: http://www.cubesat.org
[8] IGOSat Project : http://www.igosat.fr