

## **FISICA: A cubesat to validate technological bricks for future large IR space missions**

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### **Abstract**

Space-born testing of key technologies, as offered by a cubesat mission, will be an important ingredient to improve the Technology Readiness Level (TRL) of future large infrared space missions, such as FIRI (Far IR Interferometer).

In the framework of the FP7 program FISICA (Far Infrared Space Interferometer Critical Assessment), we are developing a cubesat platform which will be used for the validation in space of two technological bricks relevant for FIRI.

The first brick is a miniaturized version of an imaging multi-aperture interferometer. In the original design of such interferometer in space, the telescope dish is constituted of several individual mirrors (carried by free-flying satellites) pointing the same object. The collected light is recombined on a common detector hosted by a separate satellite. We are proposing a miniaturized design of this interferometer which will fit into the very limited resources of one cubesat and which allows for the first demonstration in space of such interferometer.

The second brick is a high-precision accelerometer which could be used in future space mission as fundamental element for the dynamic control loop of the interferometer.

In this paper, we will describe the detailed design of the cubesat hosting the two payloads.