


SPACE
AN ITALIAN INSTRUMENT BY ASI AND INFN ON BOARD EXOMARS

Europe is preparing to land on the Red Planet in 2016 with the robotic ExoMars mission by the European Space Agency (ESA). A mission in which Italy is playing a key role, that will be becoming increasingly important in the next few days, as the INRRI (INstrument for landing-Roving laser Retroreflector Investigations) laser micro-reflector developed by ASI together with INFN, with scientific direction by Simone Dell'Agnello, physicist from the INFN's National Laboratories of Frascati (LNF), is loaded on board.

After passing all the necessary tests, the instrument was delivered in record time and has just been installed on the martian descent module ExoMars EDM (Entry, descent and landing Demonstrator Module) named Schiaparelli after Italian astronomer Giovanni Schiaparelli, who drew the first map of the Red Planet.

INRRI will be the first passive laser reflector on the surface of Mars and the first to go further than the Moon. It should also be the first of a series of micro-reflectors carried on board future landers or rovers, that will go together to form a Mars Geophysical Network (MGN): a network of reference points for taking geodesic measurements and conducting General Relativity tests on Mars. In the long term, MGN could become a precision positioning network similar to that created using laser retro-reflectors on the Apollo and Lunokhod moon missions. Lastly, the INRRI could possibly be used as a new primary precision geodetic reference point on Mars: a sort of martian Greenwich. ■