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THE SPECTRAL IMAGER FOR THE PLANETARY DEFENCE MISSION HERA

Abstract

HERA is the first planetary defence mission, under development at the European Space Agency (ESA) and expected to be launched in October 2024.

HERA will investigate the Dimorphos binary asteroid and will measure the composition of the asteroid system after the kinetic impactor test of the NASA's DART mission. It will therefore provide extremely valuable information for future asteroid deflection missions.

HyperScout H is the spectral imager of the HERA mission embarked on the main HERA spacecraft to provide hyperspectral measurements in the Near InfraRed range of the binary asteroid system. The spectral imager is based on a 2D sensor used in snapshot mode and is an evolution of the HyperScout system, already deployed in a number of ESA and commercial Earth Observation missions.

HyperScout H will be used to complement the other Hera scientific payloads. The spectral range has been selected as the analysis of the asteroid NIR spectra is expected to enable the identification of minerals composing the asteroid surface.

In this paper we report the description of the instrument and an insight on its use for the HERA mission.