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ASPECT (Asteroid Spectral Imaging Mission)

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ABSTRACT

ASPECT (Asteroid Spectral Imaging Mission) is a part of revised AIDA project and aims to study the composition of the Didymos binary asteroid and the effects of space weathering and shock metamorphism in order to gain understanding of the formation and evolution of the Solar System.

The joint ESA/NASA Asteroid Impact & Deflection Assessment (AIDA) mission to the binary asteroid Didymos consists of redesigned and simplified Asteroid Impact Mission (AIM) by ESA and the Double Asteroid Redirection Test (DART) by NASA. DART is targeted to impact the Didymos secondary component (Didymoon) while AIM monitors the impact effects. This will demonstrate the use of a kinetic impactor

to deflect potentially hazardous asteroids. Both spacecraft will be launched in 2020 and will arrive to Didymos in 2022.

The AIDA mission will also include an ASPECT CubeSat, which will be carried to Didymos by either AIM or DART spacecraft. ASPECT is a 3U CubeSat equipped with a VIS-NIR spectral imager operating in 500-2500 nm spectral range and it will be used to measure the composition and spatial extent of the DART impact ejecta and to map DART impact site. It will also focus on studying space weathering and shock effects on asteroid spectra. From technical point of view ASPECT will demonstrate for the first time the joint spacecraft – CubeSat operations in asteroid proximity.
