

# ASPECT asteroid spectral imaging satellite proposal to AIDA/AIM CubeSat payload

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The Asteroid Spectral Imaging Mission (ASPECT) is a part of the Asteroid Impact Mission (AIM) 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 binary asteroid Didymos consists of the 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 AIM mission will also include two or three CubeSats, which will be released in the Didymos system. This arrangement opens up a possibility for secondary scientific experiments. ASPECT is one of the proposed CubeSat payloads. ASPECT is a 3U CubeSat equipped with a spectral imager and it will be used to measure the spectral characteristics of the impact site before and after the DART impact, as the impactor should bring fresh material to the surface. This gives a unique opportunity to study space weathering and shock effects on asteroids.