

IAF SPACE EXPLORATION SYMPOSIUM (A3)
Small Bodies Missions and Technologies (Part 1) (4A)

Author: Mr. Ian Carnelli
European Space Agency (ESA), France

Dr. Michael Kueppers
ESA, Spain

Dr. Patrick Michel
CNRS, France

Mr. Paolo Martino
ESA - European Space Agency, The Netherlands

Mr. Massimo Casasco
European Space Agency (ESA), The Netherlands

Mr. Jesus Gil Fernandez
ESA, The Netherlands

Mr. Paolo Concari
SERCOC for ESA, The Netherlands

Dr. Ana Rugina
Graz University of Technology (TU Graz), The Netherlands

Mr. Francisco de Borja Garcia Gutierrez
European Space Agency (ESA), The Netherlands

Mr. Michael Khan
European Space Agency (ESA), Germany

Mr. Alberto Valverde Carretero
Moltek Consultants ltd. for ESA, The Netherlands

HERA MISSION TO ASTEROID DIDYMOS: ESA CONTRIBUTION TO THE AIDA
INTERNATIONAL COLLABORATION**Abstract**

Hera is a small spacecraft under study at ESA to launch in 2023 and rendezvous with asteroid Didymos in 2026 with the main objective of studying the results of NASA's DART hypervelocity impact. Hera and DART together form the Asteroid Impact and Deflection assessment mission to validate the kinetic impact asteroid deflection technique. Hera is currently in phase B1, phase B2 is planned to start in the fourth quarter of 2019. It is part of the new Space Safety Programme under preparation at ESA and proposed to its Member States for approval by the Council at ministerial level planned in November 2019. The Hera spacecraft is a small platform carrying two 6U cubesats, two navigation cameras, a thermal imager and small ranging lidar. It will rendezvous and investigate the binary asteroid Didymos with the objective of characterising its physical and dynamical properties necessary for a detailed interpretation of DART impact effects. The investigations will also focus on the morphology of the crater generated by DART also using the support of its cubesats. The paper presents the details of the mission design, its technology and implementation status within the new ESA Space Safety Programme.