

Mitigation-relevant science with Don Quijote - a European-led mission to a near-Earth asteroid

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The Don Quijote concept includes a rendezvous spacecraft and an impactor vehicle. The main aim of the mission is to carry out an experiment to demonstrate the modification of a near-Earth asteroid's orbit in a controlled way, as a first step in establishing mitigation measures against an eventual hazardous object. In particular, the spacecraft would study the physical properties of the target asteroid and the effects of a kinetic impact on its dynamical state. It is also expected that some spacecraft resources will be available for more general solar-system science investigations. The Don Quijote mission is currently at the phase-A stage, during which a number of European consortia of industrial and scientific partners will study its technical feasibility and potential scientific return. The basic mission concept, current scientific issues, and the possibilities for international participation in the mission will be discussed.