

RESEARCH STUDENT COMPETITION "ENCOUNTER 2029: STUDENTS INVESTIGATING APOPHIS"



What is the competition?

In 2029 asteroid 99942 Apophis (2004 MN4) will flyby the Earth at a distance of about 32 000 km. This is closer than any known past or future approach by natural objects larger than about 10 meters (other than objects that have entered Earth's atmosphere). After a resonant flyby, the asteroid will then return towards Earth with two potential impact dates between 2036 and 2037.

This close encounter with 99942 Apophis in 2029 will provide a window of opportunity for scientific and technological research.

Research students are encouraged to think about innovative ways in which this close encounter can be utilised to increase our scientific and/or technological knowledge of small bodies and their surrounding environment.

Papers will be welcomed on a variety of subjects that can be related to the theme of Apophis and small body encounters. Subjects for papers might include, but are not limited to; modelling of the small asteroid environment and related effects (e.g. plasma environment, dust, solar radiation, Yarkovsky effect); geology and geophysics of small bodies, dynamics and control related to Apophis-like rendezvous and interception scenarios; innovative deflection strategies and mission architectures, etc.

The best student paper will be awarded a prize.

Who can participate?

In order to participate you must:

1. be a post-graduate (Masters or Ph.D.) research student on 1 December 2009, *and*
2. have a senior researcher (with at least 4 years post-doctorate research experience) who is permanent staff in a university department or research institution, willing to endorse your paper (e.g. co-author).

How do I participate?

If you intend to participate and satisfy the eligibility criteria above, submit a technical abstract (250 to 500 words in length) electronically using the [online submission form](#) and select the dedicated "student abstract" box in the form.

The deadline for receipt of abstracts is 1 December 2008. Letters of official acceptance and instructions for paper submission will be mailed on or before January 15, 2009.

Related activities

ESA Advanced Concepts Team ([ACT](#)) is actively performing research in the area of NEO interaction and deflection. The aim of the ACT is to explore technologies for applications to future space missions by fostering interaction between European research groups and organizations and providing specific solutions to cutting edge research problems.

One of the key objectives of the [ACT](#) is to enhance cooperation and facilitate research partnerships with universities and research departments linked to universities. This is done through the [Ariadna](#) programme. It is expected that this cooperation will also improve the awareness of the academic community of activities and developments within the space sector.

In particular the ACT released an Ariadna Call for Ideas to academic institutions in 2008 entitled [Encounter 2029](#). The main aim of this Call for Ideas was to attract proposals for new and innovative scientific and technical studies, which will act as the first steps towards increasing our knowledge and level of preparation for the initiation of a NEO hazard mitigation response.

More information about the ACT's research, the Ariadna Programme and the Encounter 2029 Call for Ideas can be found on the [ACT webpages](#).

FOR MORE INFORMATION: See the conference web page at
<http://www.congrex.nl/09c04/>