

IAF SPACE EDUCATION AND OUTREACH SYMPOSIUM (E1)  
Interactive Presentations - IAF SPACE EDUCATION AND OUTREACH SYMPOSIUM (IP)

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CELESTIAL MECHANICS AND ASTRODYNAMICS FOR HIGH-SCHOOL STUDENTS: LINKING  
MATHEMATICAL ASIGNATURES TO GENERATE INTEREST ON RESEARCH ARGUMENTS FOR  
CURRENTLY SPACE MISSIONS.

**Abstract**

During their last years at high school many students face the question of choosing their future profession, which would define their professional life at the very least for many years, or probably for the rest of their lives.

National Preparatory School (ENP) of the National Autonomous University of Mexico (UNAM) conducts various events aimed at familiarisation of high-school students and junior university students with various professions, helping them to pick specialisation in line with their interests, and motivation towards thorough studying of key scientific subject.

Unfortunately in the mexican high-schools the space is not a central argument: usually a student learn a little bit of astronomy in general courses of science, and, if the school is a scientific-oriented one, a student studies the law of gravitation with some astrodynamics application in the course of Physics. But nowadays many student population have increased their interest in space sciences.

In the Mathematic Departments of the ENP we are convinced that various asignatures of the mathematics program of the High School level can be linked to the development and basic construction of the celestial mechanics and astrodynamics, getting to describe some research arguments, such as monitoring the impacts of Asteroids close to Earth, the determination of the orbit and the correlation of space debris. In present work we would like to show a novel technique to teach, introduce and generate interest on high school students through the mathematical deduction, the implementation of specialice software and simulating some research arguments for currently space missions.