

Education and Development in Space Technology

ESA visit to Croatia

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Education

- School sections for space technology
- Workshop for space technology
- Project "3D Factory of the Future"
- Science Festival
- Rocket design

Sections for space technology in schools

Sections management: Technical School Sisak with A3 and ASOO.

The project goal: developing skills in space technology and satellite communication.

Status of the project:

- 9 schools (Sisak, Kutina, Đurđevac, Osijek, Rijeka, Slunj, Slavonski Brod, Dubrovnik) with 200 students
- all sections applied for InnoSpaceComm and are members of Spaceport Platform – financed from HORIZON2020 (Development and Innovation, project No.768049)
- Four teams of students in TS Sisak are engaged in ion engine development
- „Space Technology in High Schools,, workshop at TS Sisak for over 40 teachers.

Future plans:

- Including at least 30 additional high schools by the end of 2019.
- Organize competition for students, with 3 students in a team
- Organize visit of students and mentors to ESA labs.

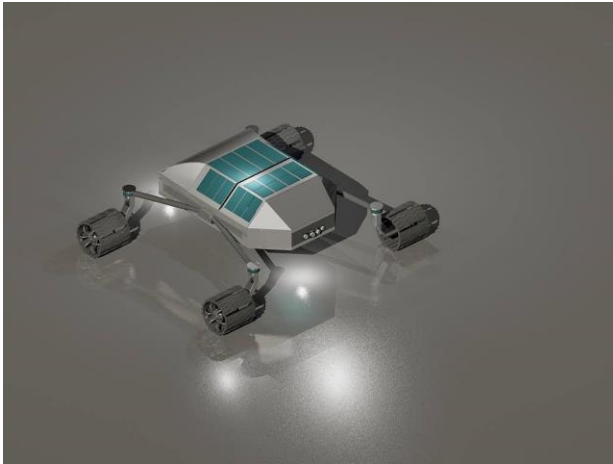
Space technology workshop

- Planned within TS Sisak competence center, the only of this kind in Croatia
- Workshop shall be equipped with state-of-the-art equipment for acquiring competencies in assembling, programming and testing nano satellites. The level of all activities will be appropriate for high school students.

3D Factory of the Future

- Project implemented in 2015 and funded by EU.
- Five vocational schools involved
 - Sisak, Velika Gorica, Kutina, Osijek and Zadar
- Goal: design and assemble robotized space rover. Students with mentors and consultants designed rover in 3D, printed its elements, programmed its computer, and assembled it.
- Project leader: prof. Stevce Arsoski at TS Sisak

Space rover



Design



3D printed part



3D printer



The Rover

Ion lifter



Tools



Ion lifter



Ion lifter team

Science festival

- Faculty of Metallurgy in Sisak organizes "Color of the Universe" event as part of Croatian Science Festival. Students will learn news from space technology presented by members of A3, new space materials developed at the Department of Metallurgy in Sisak and development of ion engine at the TS Sisak.
- The event will be live streamed.

Croatian Astronautical and Rocket Federation

- The Federation's technical activities are on two levels
 - popularization and practice
- Target population
 - seniors, young people and children.

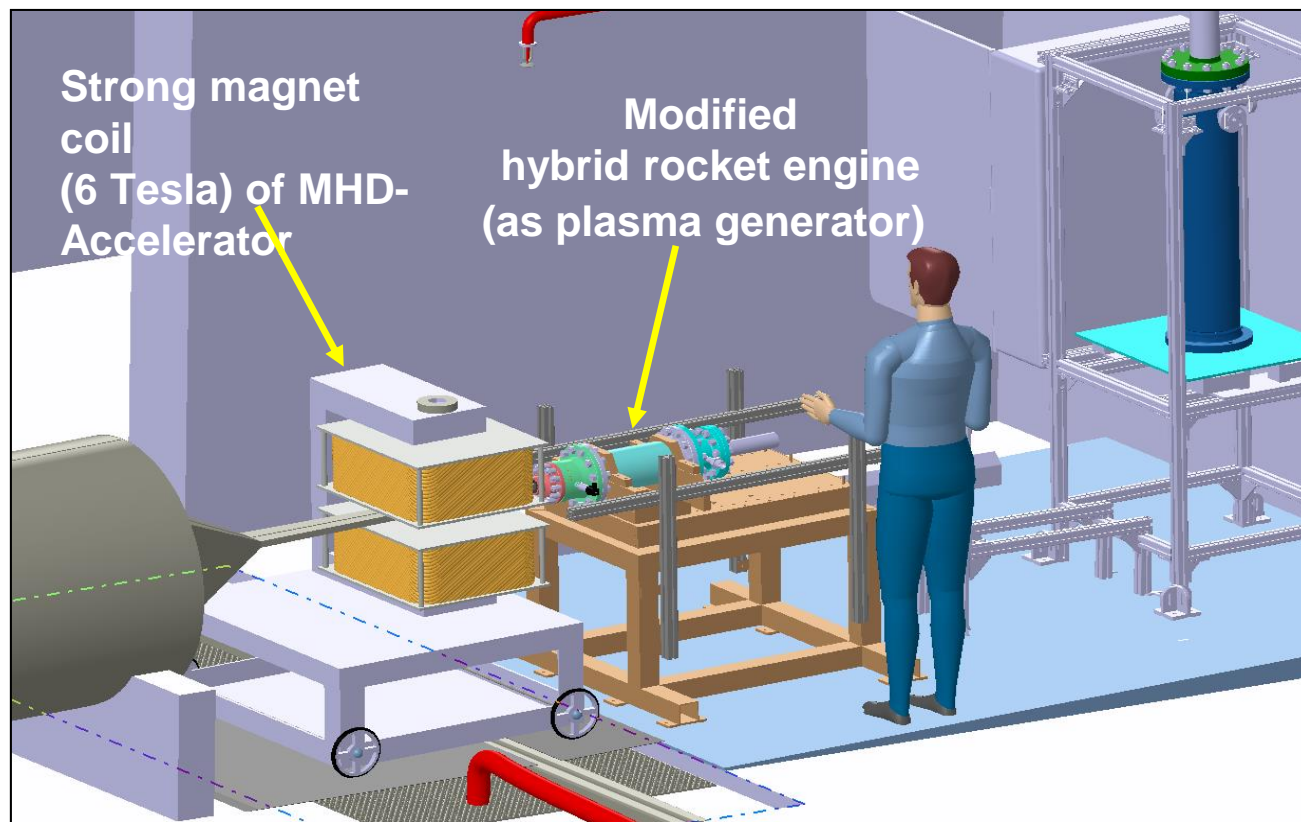


Final checkup



Lift off

MHD/ MPD - thrust amplification for aerospace propulsion systems



Preliminary concept of MGD ground test arrangement (artist view)

Development

- Center for Space Technology Sisak
- Rocket technology

Centre for Space Technology

- Founded by the County of Sisak-Moslavina with the Faculty of Metallurgy and TS Sisak.
- Financed by the County and EU funds.
- Goal: develop products for space industry in collaboration with the centers of applied and fundamental research.
- Area of development: electronics, chemistry, rocket engineering, materials.
- Initial project is to develop material for protection against harmful radiation in Space.

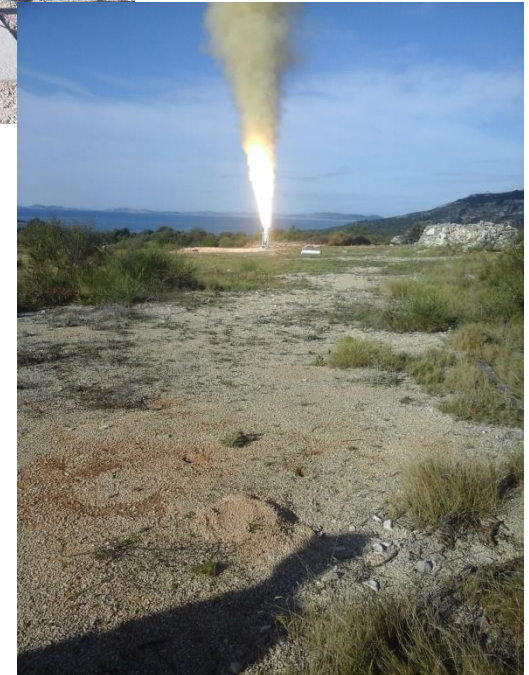
Rocket development

- ATIR firm specializes in developing and manufacturing short range solid state rockets.
- The basis for development of micro launchers.



**Rocket engine
test ground**

**Testing rocket
engine**



Sounding rocket and technology demonstrator **VIHOR**



THANK YOU FOR YOUR ATTENTION