



2021 International Collegiate Spacecraft and Digital Space Innovation Design Contest

1、Background and Objectives

Spacecraft is an integrated embodiment of cross-integration of technologies in many fields, including mechatronics, informatics, energy, and materials. With the development of science and technology, spacecraft innovation has shown a diversified trend, not only in spacecraft and space systems, payloads and spacecraft subsystems, but also in space missions and space applications. In recent years, the innovative design of spacecraft has been fully integrated with technologies and applications such as big data, artificial intelligence, commercial aerospace, and military-civilian integration, and has continuously formed new innovative models such as digital space and intelligent aerospace, which have strongly promoted aerospace technology by leaps and bounds. In particular, digital space technology that serves spacecraft for accessing space, using space, exploring space, and protecting space security, is constantly becoming a new strategic field of space technology.

The development of aerospace science and technology is inseparable from the participation of young people from all over the world. The

purpose of this contest is to promote exchanges and cooperation among students around the world, either undergraduate or graduate, inspire students to explore the aerospace high-tech and digital space, cultivate the sense of innovation, and exercise comprehensive analysis and practice ability.

2、 Organization

1. Guidance agency: China Association for Science and Technology

2. Organizers: Chinese Society of Astronautics, Chinese Society of Aeronautics and Astronautics, Chinese Society of Space Research, Harbin Institute of Technology

3. Co-organizers: Institute of Space Science and Applied Technology, Harbin Institute of Technology(Shenzhen), Association of Sino-Russian Technical Universities (ASRTU), National-Local Joint Engineering Laboratory of Rapid Response Small Satellite Technology

4. Event Organizer: School of Astronautics, Harbin Institute of Technology

3. Theme of the Contest

Focusing on the latest advances in science and technology and future trends in space-related fields, to carry out innovation in spacecraft-related fields, participants are particularly encouraged to envisage innovative ideas that may have an impact on the development of future space technology, the theme of the contest is as follows:

1. New concept spacecraft and space systems: in the light of future development of space technology and space mission requirements, to make innovative designs in the structure, overall program, realization

mode or other aspects of the spacecraft or space system, and give a system program.

2. New payloads and spacecraft subsystems: for a space mission or space application, to design a scientific detection payload, an application payload, including but not limited to all kinds of detectors, optical detectors, new type thrusters, new type communication loads and so on.

3. Innovative applications and operation-maintenance models in space industry: to make breakthroughs in traditional space applications such as navigation, remote-sensing and communications, and put forward new applications and operation-maintenance models, examples include integration of navigation-remote-sensing-communications, event-driven remote-sensing, internet satellites, user-defined space applications, commercial operation and maintenance, etc.

4. Other advanced space technology concepts and innovations: including but not limited to digital space modeling, applications and development, intelligent and autonomous space technologies, surveying the edge of the solar system, galactic colonization, etc.

4、Participants

Students of international universities and scientific institutions, (undergraduate or graduate) regardless of their disciplines, who are interested in the digital space technology and the innovative design of spacecraft, can participate in the contest as an individual or in a team up to five people (including the team leader). For each team, 1-2 academic advisers are allowed.

5、Requirements

Entries should be scientific, innovative and integrative, and needs to be submitted as required within specified time. The template for the works to be submitted can be found in the website(coming soon), and the design plans, digital models, pictures, videos, etc., can be submitted as attachments. Teams with physical models can bring them to the final for demonstration(on-line or off-line).

6、Prizes

Certificates and awards will be issued to the winning entries, and the detailed awards are set as follows:

Special Prize: \$10000 (Pre-tax, 1 piece, and can be vacant)

First Prize: \$5000 (Pre-tax, 3 pieces)

Second Prize: \$2000 (Pre-tax, determined in proportion to the submitted works)

Excellent Prize: Several

Depending on the circumstances of entries, the organizing committee can adjust the number of awards. Outstanding works would be selected as the optional scheme for ASRTU small satellite mission plan and offered the launch opportunity. The papers based on excellent competition works will be recommended to “Journal of Astronautics” and “Chinese Journal of Aeronautics” for publication. The winning team and individual would be selected to participate in the satellite launch tour and small satellite summer camp.

7、Entry Method and Submission Period

From March 15th to April 15th, 2021, participants will register through the official website icsidc.hit.edu.cn;

From April 16th to May 15th, 2021, participants submit their works through the official website icsidc.hit.edu.cn;

In late June 2021, the list of finalists and the form of final submission will be notified;

In August 2021, the on-site final defense will be conducted in English

8、Special Declaration

1.Entries should not infringe on the intellectual property rights of others. Any intellectual property dispute between the work and others shall be handled by the entrant.

2.The intellectual property rights belong to the participants, and the competition organizing committee has the right to edit, publish and publicize the works for non-profit nature. Any team or individual who submits their work to participate in this competition shall be deemed to have confirmed and voluntarily abide by the relevant copyright agreement of the competition.

3.Entries should not violate the relevant laws and regulations of the country where the participants are located, and the consequences caused by the participants or works violating legal issues shall be borne by the participating units and individuals.

4.All works must not be classified, or shall be declassified. Contestants shall bear the responsibility for the leaks caused by the work.

5.If you have any questions about this notice, please call the organizing committee, and the final interpretation of the organizing committee shall prevail.