

SPACE EDUCATION AND OUTREACH SYMPOSIUM (E1)  
New Worlds - Innovative Space Education and Outreach (7)

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S4 SUMMER SCHOOL FOR MULTI-DISCIPLINARY NANO-SATELLITE CONCEPTS

**Abstract**

Swiss Space Systems (S3) is a young company with the objective of providing a flexible, safe and efficient launch system for small satellites. The vision of S3 is to shape the future of commercial and academic space research and to be the world leader in in-orbit delivery of small satellites. The aim is to democratize access to space by enabling emerging organisations to deploy their own satellites. Making use of the motto "SPACE 4 ALL", the S4 foundation is founded to realize this vision. S4 aims to develop a Centre of Excellence on Small Satellite Technologies, where training and R&D activities for nano-satellite technologies are carried out in an innovative manner. S4 organizes 3-week long Summer Schools every August, with a different nano-satellite concept and mission idea each time. The accepted university or graduate students receive lectures from the worldwide experts of the space technology, space policy and business administration fields and also work to come up with a conceptual design by the end of the Summer School. The project should be feasible, hence expertise and lectures on legal and economic matters are also provided. The project topic for 2014 Summer School was "Recoverable Payload in a NanoSatellite". The recoverable payload includes the memory card and/or a small sample from the in-orbit experiment as well as a beacon. Possible application fields of such a mission are urgent delivery from the ISS, any scientific mission that generates high amount of data that is not possible to download or any micro-g experiment where the sample needs to be examined.

20 highly skilled multi-disciplinary applicants are selected by S4 and scholarships are awarded to cover all expenses. Applicants from inter-disciplinary programs such as engineering, computer sciences, space policy, business development, marketing and life sciences are encouraged. Lectures on space environment, nano-satellite technology and sub-systems, payload development, space law, space project economics and management, and a few case studies are provided. In addition, interactive workshops are held on nano-satellite design and mission analysis. The accepted students form three groups in competition to come up with the best conceptual design. The Evaluation Committee can suggest the best design to be developed further to be launched by S3. Attendance to international conferences and journal publication are other awards. The innovative and prestigious space education program offered by S4 Summer School is based on a team work focused multi-disciplinary, multi-cultural, equal-hierarchy culture.