

Small Explorer for Advanced Missions

N. Ivchenko

*Space and Plasma Physics, School of Electrical Engineering,
Royal Institute of Technology (KTH), Stockholm, Sweden*

e-mail: nickolay@kth.se

The cubesat standard for nanosatellites, primarily setting the unified interface to the launcher, allows standardizing cubesat preparation and launch, thus making this part of the projects more affordable. Miniaturisation of the instruments, and meeting the requirements of scientific missions within the cubesat constraints is however still a challenge. The SEAM (Small Explorer for Advanced Missions) project is funded within the EU 7th Framework Programme to develop a set of improved critical subsystems and to build and fly a 3U cubesat for magnetic measurements in low Earth orbit. The novelty of SEAM is that the spacecraft will be an electromagnetically clean nanosatellite with precision attitude determination, flexible autonomous data acquisition system, wideband telemetry and an integrated solution for ground control and data handling. The primary demonstration of SEAM is in the area of magnetic and electric fields measurements and space weather monitoring. In this area there is a recognized need for multi-point measurements that will only become viable if the cost of each satellite (hardware and launch) is low enough and the operation of the satellites is automated to a large degree. The SEAM cubesat development is aimed at meeting this requirements.