New challenges of airborne gamma ray spectroscopy

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The frontiers of airborne gamma-ray spectroscopy (AGRS) are continuously pushed forward thanks to the development of innovative instrumentation and to advances in data analysis and interpretation. The employment of new unmanned aerial vehicles, together with the need for real-time identification of anthropogenic radionuclides for homeland security purposes, are reawakening the interest in detectors efficiencies and minimum detectable activities, which can be estimated provided an adequate understanding of the background radiation components and of the flight conditions.

In the seminar the features of the Radgyro, an aircraft specifically designed for multiparametric surveys, will be presented, together with the most recent results regarding calibrations techniques, cosmic gamma radiation and atmospheric radon detection. Thanks to a 3 hours flight autonomy and a 130 kg payload, which allows for mounting a set of photogrammetric, thermal and infrared cameras and a 16 L NaI(Tl) spectrometer, the Radgyro is the ideal vehicle for testing the technologies that will be hosted in the future on drones dedicated to homeland security and environmental monitoring.