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RAADsat: a cubesat mission for the detection of Terrestrial Gamma-ray Flashes

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RAADsat (Rapid Acquisition Atmospheric Detector) is a *three unit* Cubesat mission that will be launched in the first quarter of 2021 and deployed from the International Space Station. The mission will target Terrestrial Gamma Ray Flashes (TGF), sudden bursts of gamma-ray radiation occurring on sub-millisecond timescales, and triggered by lightning or thunderstorms. RAADsat is sensitive to the energy range 20 keV –3000 keV and consists of two arrays, one equipped with four Low Background Cerium Bromide (CeBr3(LB)) crystals and four Hamamatsu S13361-6050AE-04 MPPCs, the other with two CeBr3(LB) and two Lanthanum Bromo Chloride (LBC) crystals four Hamamatsu R11265-200 PMTs. The mission will be also used as proof of concept and to space-qualify the proposed technology opening for the deployment of a constellation of Cubesats to improve the collection efficiency, the sensitivity and to localize the origin of TGF events. The immediate scientific goals are to explore the average atmospheric cut-off at low energies, search for the 511 keV electron-positron annihilation line and search for microsecond structure in the brightest TGF.

Secondary track (number)

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