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Title:

Radiation test strategy for Infrared cooled detectors at LYNRED

Abstract:

Space environments are known to be harsh for embedded devices and circuits. Failures due to radiation effects can be induced in electronics systems by high-energy particles, such as cosmic rays, electrons, and protons. Therefore, performing studies of space environments and their related effects on electronic systems and devices is fundamental.

Photonic imagers are increasingly used in space systems and exposed to radiation environments which induce a challenge to their functionalities. These devices are subject to classical radiation effects, such as displacement damage, total ionizing dose and soft errors.

LYNRED has performed radiation test on infrared detectors for more than 20 years. Nevertheless, since some radiation effects, as well as relaxation processes following the radiation damage, are temperature dependent, a focus on radiation effect at cryogenics temperature has been done.

In this presentation, we will present the methodology developed at LYNRED to assess and qualify the radiation effect at cryogenics temperature on infrared detectors for space applications.