

EP 14: Astrophysics III

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R&D on the Geant4 Radioactive Decay Physics —
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The anticipated high sensitivity of the next generation X-ray space
missions, like the International X-ray Observatory, rely on a low in-
strumental background, which in turn requires optimized shielding con-

cepts for the instruments. Most state-of-the-art approaches estimate
the prompt cosmic ray, solar proton and the cosmic X-ray induced
background with simulations using the Geant4 Monte Carlo tool-kit
whose electromagnetic and hadronic physics models have extensively
been verified with space and ground based experiments.

In contrast measurements to verify the radioactive decay implemen-
tation in Geant4 have been rare or have only been tested on a limited
set of isotopes, which are not necessarily those used in satellite con-
struction. We present first results of two experiments aimed to verify
Geant4 activation and decay physics for materials significant for low
background X-ray detectors in space.