ID: Type: **Poster**

System Tests of OSIRIS: A Spectrum-Blind Gamma-Ray Spectrometer for On-Site Inspections under the Comprehensive Nuclear-Test-Ban Treaty

We have conducted extensive system tests of the On-Site Inspection RadioIsotopic Spectroscopy (OSIRIS) system, a spectrum-blind instrument for the acquisition and analysis of high-resolution gamma-ray spectra during on-site inspections under the Comprehensive Nuclear-Test-Ban Treaty (CTBT). Unlike most other spectrometers, the OSIRIS system does not display actual gamma-ray spectra, and its software filter limits the display of spectral information to just seventeen CTBT-relevant fission-product isotopes, for example, 131I. The OSIRIS tests include environmental chamber measurements of energy-calibration accuracy and electronic-gain stability of the mechanically-cooled high-purity germanium gamma-ray spectrometer over the range measured from -12 ℃ (10 ℉) to 50 ℃ (122 ℉). Other measurements have followed the decay of calibrated uranium fission-product sources for over a year at Idaho National Laboratory (INL) and Pacific Northwest National Laboratory (PNNL). Many of the fission-product measurements at INL and PNNL were conducted outdoors under a broad range of ambient conditions.

Primary author: CAFFREY, Gus (Idaho National Laboratory)

Presenter: CAFFREY, Gus (Idaho National Laboratory)

Track Classification: 3. Advances in sensors, networks and processing