



C-NR team receives NNSA Joule awards

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C-NR group members Travis Tenner, Ben Naes, and Kim Wurth received Joule awards in 2020 and 2021 from the Safeguards Technology Development Program in the National Nuclear Security Administration’s Office of International Nuclear Safeguards (NA-241). The team was awarded for their work on the “Development of Particle Working Standards for the Network of Analytical Laboratories Particle Laboratory Calibration and Quality Control”.

Their project involves a tri-lab collaboration between Savannah River National Laboratory, Pacific Northwest National Laboratory, and Los Alamos National Laboratory. SRNL and PNNL produce particulate samples and LANL provides characterization of those samples by Large Geometry - Secondary Ion Mass Spectrometry (LG-SIMS). LG-SIMS characterization shows whether the materials are isotopically homogeneous from particle to particle and whether particle isotope compositions meet targeted values and uncertainties, as requested by the International Atomic Energy Agency. The C-NR team’s characterization determines if the samples are suitable for use as reference materials for the IAEA.

Kim Wurth, Ben Naes, and Travis Tenner with the LG-SIMS instrument.

The 2020 and 2021 Joule awards honor the C-NR team’s production and LG-SIMS characterization of low-enriched uranium particle reference materials — all deemed successful by the IAEA. In nuclear safeguards, particle analysis by LG-SIMS provides isotope compositions of materials for sample-limited situations (e.g., swipes of surfaces) and determines if mixed isotope sources are present within samples of interest. Particle reference materials are necessary to calibrate analytical instrumentation so that accurate isotope compositions of samples can be achieved.

The Joule award is one of five awarded across the DOE complex each year by NA-241 in recognition of technologies that are successfully transferred to the IAEA or member states.

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Los Alamos National Laboratory

www.lanl.gov

(505) 667-7000

Los Alamos, NM

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