



Contribution ID: 22

Type: **Poster**

# Radiopurity procurement for AMoRE-II

*Wednesday, 2 October 2024 19:40 (20 minutes)*

The AMoRE-II is searching for neutrinoless double beta-decay (0 $\nu$ DBD) of  $^{100}\text{Mo}$  using cryogenic calorimeters with 360 lithium molybdate ultra-pure scintillation crystals. Experiments seeking rare nuclear processes, like 0 $\nu$ DBD, are propelled by pursuing ever-diminishing levels of radioactive backgrounds and the techniques that can extract a weak signal from this background. Among these techniques, the role of radioanalytical chemistry in minimizing radioactive contamination in the materials used for the experiment is paramount. This report presents the purity level of materials used for crystal synthesis and the radiopurity assessment (ICP-MS and ultra-low background HPGe gamma spectrometry) results for the crystals, detector components, and shielding materials. Special techniques were developed for material recycling and re-purification in the crystal production chain. For the detector and shielding components, surface cleaning techniques were adapted to eliminate contamination caused by the treatment of the set-up details. To confirm the effectiveness of the cleaning and recycling procedures, selective sample preparation methods using extractive chromatography were implemented for sensitive ICP-MS assay of Th and U.

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**Session Classification:** Poster Session