The Assay and Acquisition of Radiopure Materials (AARM) is a collaboration including representatives from all major dark matter and double beta decay experiments, as well as representatives from the geology and microbiology communities. We have worked together over the last three years to better understand low radioactivity environments and exploit common resources. By organizing around common goals that would benefit from structured cooperation, we have succeeded in creating a forum for sharing information and advancing research goals, including new technologies for particle detection, simulation techniques, and material screening.

We request funds to continue our role as a central unifying force in the international underground community with these specific goals:

1. Development of community-wide simulation tools,
2. Confirmation of simulation physics models and cross sections relevant to underground science by comparing to data worldwide and supporting specific efforts in neutron benchmarking,
3. Establishment of a global materials database, and
4. Continuation of the very successful integration workshops centered around simulation, material screening, and underground physics.

We are now in the midst of a detailed program to compare muon production of neutrons in a large range of materials, as calculated by FLUKA and Geant4, and to understand nuclear recoil rates in liquid xenon and argon, and in germanium. We are working toward consistency between the major coding packages and a deeper understanding of the physics. Eventually we plan to set up "geometry free" simulations on specific compositions of materials as automatic benchmarks for new releases of Geant4/FLUKA. All this work is coordinated with the SLAC Geant4 collaboration and the CERN FLUKA group.

We will continue to provide a forum for experiments to compare their simulations, share new software packages, and provide fast turnaround for bug reports. As in the past, these efforts will be organized around workshops that occur every six months. We plan to keep the format similar; a blend of talks and parallel working group meetings. We will develop additional software tools and organize them with a more extensive common website. This includes site-specific characterization files (e.g. muon flux, rock composition, gamma and neutron spectra) for all underground labs, an open-source screened materials database, a code repository, an expanded database for (α, n) induced neutron backgrounds, and files of cosmogenic shower particles that are unique to each underground location and ready to be used as input to any experiment siting there. We will collate existing data on cosmogenic neutrons and nuclear cross sections, and support continued neutron benchmarking at Soudan.