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The New Copper Age of Particle and Astrophysics

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As the inexorable march of particle and astrophysics continues, the requirements for purity of metals for use in every conceivable aspect of these experiments grows. Returning to one of the very first metals utilized in large scale by humans, we are embarking upon a New Copper Age in particle and astrophysics, requiring previously near inconceivable levels of elemental purity and perfection of size, shape, porosity, and surface chemistry, of copper for use in detector systems, shielding, and various other aspects of the work done at SNOLAB. Already home to the upcoming Ecumé project, producing a 1.4 m diameter copper sphere of the utmost purity, SNOLAB is continuing to expand our capabilities in this field with the goal of developing ever more refined methods, skills, and capabilities required to create copper with sub part per quadrillion in Uranium and Thorium. Of equivalent importance is the ability to produce copper parts of arbitrary shape and size, as well as to provide the most complete characterization of the surface, bulk, and elemental properties. These exciting new developments find themselves at a unique intersection between many subdisciplines of chemistry, physics, and metrology, making it a truly interdisciplinary affair.
We invite any and all interested in the applications of copper in particle and astrophysics to attend for a short introduction to SNOLAB's chemical personnel, electroforming, purification, and production methods as well as a discussion of our current goals and projects in copper electroforming at SNOLAB.

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