

SNO+ and the Future of Tellurium Loading

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The origin of neutrino mass is one of the central puzzles in particle physics today. It is intimately connected to the question of whether neutrinos can act as their own antiparticle, with fundamental implications for both particle physics and cosmology. The only known experimental approach that can be practically used to address this question is the search for neutrinoless double beta decay, but a meaningful test may require instruments that are several orders of magnitude more sensitive than any current devices. This poses significant practical challenges, with the next generation of germanium and xenon instruments already pushing the boundaries of affordability. In contrast, SNO+ has pioneered a significantly more affordable approach that promises high sensitivity and can continue to be extended beyond that of the currently planned next generation of instruments. This talk will discuss the potential for SNO+ beyond the initial Phase I tellurium loading, both in terms of a straightforward increase of tellurium levels to dramatically increase sensitivity (Phase II) and as a stepping stone to what may be the only practical approach able to achieve sensitivity in the region of the normal neutrino mass ordering with a future project.

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