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A new high sensitivity search for neutron-antineutron oscillations at the ESS

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A sensitive search for neutron-antineutron oscillations can provide a unique probe of some of the central questions in particle physics and cosmology: the energy scale and mechanism for baryon number violation, the origin of the baryon-antibaryon asymmetry of the universe, and the mechanism for neutrino mass generation. A remarkable opportunity has emerged to search for such oscillations with the construction of the European Spallation Source (ESS). A collaboration has been formed which has proposed a $n\bar{n}$ search at the ESS which would provide a sensitivity to the oscillation probability which is three orders of magnitude greater than that achieved at the ILL experiment.

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