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Neutron-Antineutron Conversion to Search for B-L Violation

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Neutron-antineutron (n–$\bar{n}$) conversion describes the change of a neutron into an antineutron as mediated by an external source. As a result its ability to occur is not limited by the presence of magnetic fields or matter, as would be the case if a neutron were to transform spontaneously, or to oscillate, into an antineutron. We explore the limits on the appearance of baryon number minus lepton number (B-L) violation that can be set through the study of the conversion process, notably through scattering experiments employing intense beams, and we discuss the conditions under which such studies can also yield limits on the neutron's Majorana mass.

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