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The search for heavy neutrinos at NA62

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Heavy neutrinos are predicted by many beyond-the-Standard-Model theories of particle physics, with proposed masses ranging from a few eV/c^2 up to the Planck scale. Two-body kaon decays provide a method to search for these particles in a model independent manner, for masses between 100 MeV/c^2 and 388 MeV/c^2. In 2007, the NA62 experiment at CERN collected a large sample of charged kaon decays with a low intensity beam and minimum bias trigger conditions, which can be used to put limits on the mixing between heavy neutrinos and the Standard Model muon neutrino. Here, the method is discussed and the predicted sensitivity is compared with existing limits in the literature.

Summary

NA62 can perform peak searches in existing data from kaon decays to place limits on the existence of heavy neutrinos.

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