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First observation of ground state di-neutron decay: ^{16}Be

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A single-proton knockout reaction from a 53 MeV/u ^{17}B beam was used to populate the ground state of ^{16}Be . The decay of ^{16}Be was reconstructed from the four-momentum vectors of the ^{14}Be fragment and the two emitted neutrons using the MoNA/Sweeper setup. ^{16}Be is bound with respect to the emission of one neutron and unbound to two-neutron emission. The dineutron character of the decay was evidenced by the small relative angle between the two neutrons and by the sharp relative 2n-energy. The 2n-analysis of the ^{16}Be decay will be presented. Results on the 2n-separation energy will be compared to shell model calculations.

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