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Observation of the excited states from the 9Be(d,d)9Be reaction

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The experiment was conducted at the HI-13 tandem accelerator at the China Institute of Atomic Energy (CIAE) in Beijing. Two different methods of deuteron detection were used: 1) a Q3D magnetic spectrometer at small angles (5–19 degrees in lab. system); 2) at medium and large angles - ΔE-E technique. Differential cross sections of the ^{9}Be(d,d)^{9}Be scattering at E(d) = 23 MeV were obtained for the following states: g.s, 2.43 MeV, 2.78 MeV, 3.05 MeV, 3.82 MeV, 4.7 MeV, 5.59 MeV, 6.38 MeV, 6.76 MeV and 7.94 MeV. The purpose of the experiment was to determine the properties of the ^{9}Be excited states, in particular, 3.82 MeV state with proposed spin-parity of $\frac{3}{2}^{-}$[1], 5.59 MeV ($\frac{3}{2}^{-}$) and 4.7 MeV ($\frac{3}{2}^{+}$).

[1] Smith R et al 2016 Phys. Rev. C 94 014320

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