We are going to report preliminary experimental results in our recent pilot experiment performed in October 2010 for spectroscopy of pionic 121Sn atom in the RI beam factory, RIKEN. We have taken the excitation spectrum of the 122Sn(d,3He) reaction near the pion emission threshold.

Presently, elaborate analysis is on-going and the preliminary spectrum observes a distinct structure of peaks in the bound state region, which is a candidate of the first observation of the pionic 121Sn atom.