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Excitation of the Delta(1232) isobar in deuteron charge exchange on hydrogen at 1.6, 1.8 and 2.3 GeV

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Deuteron charge exchange break-up dp->{pp}n, where the final {pp} diproton system is at very low excitation energy and hence in the 1S_0 state, is a powerful tool to probe the spin-flip terms in the proton-neutron charge-exchange reaction. Recent measurements with the ANKE spectrometer at the COSY storage ring at 1.6, 1.8, and 2.3 GeV have extended this study into the pion-production regime in order to investigate the excitation of the Delta(1232) isobar in the dp->{pp}Delta^0 reaction. Values of the differential cross section and two deuteron tensor analysing powers, A_xx and A_yy, have been extracted in terms of the diproton production angle or Delta^0 invariant mass. These data can be interpreted in terms of the spin-longitudinal or spin-transverse contributions to the elementary np->pDelta^0 process. The results to be presented will also be compared to those obtained with the SPES-4 spectrometer at Saclay at 2 GeV, where only a single combination of A_xx and A_yy was measured.

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