Design of Neutral Particle Detector for KSTAR

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Detection of high energy particle is one of the criticle issues at fusion plasmas. Isotope ratio of fuel is also important in the effective ICRF minority heating. A single channel compact neutral particle analyzer based on operating small Si diode detectors is developed to measure energetic hydrogen minority ions stemming from ion-cyclotron range-of-frequency heating and deuterium ions with energies from 100 keV neutral beam injection at KSTAR. The detection energy is from 50 keV to 300 keV. The diagnostic employs the integrated preamplifier and amplifier and fast digitization of the shaping amplifier voltage. The digitized data are processed by DSP(Digital Signal Processing). The basic performance of the detector module is checked by using the gamma and alpha source of Am and 100 keV diagnostic ion beam. In this presentation, the design features and the calibration result of NPA will be shown.