

# Development of the Light charged Particle Detector Array (LPDA) at Back-n white neutron source

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**Abstract:** The "Back-n" white neutron source of China Spallation Neutron Source (CSNS) is a good platform for nuclear data measurement and nuclear technology application. A light charged particle detector array (LPDA) with sixteen  $\Delta E$ - $\Delta E$ -E telescopes had been constructed in 2020. Each telescope employs a low-pressure multi-wire proportional chamber (LPMWPC) as the first stage, followed by a silicon PIN detector. A thallium activated Cesium Iodide (CsI(Tl)) crystal readout by SiPM as the total energy detector at the end of each telescope. The 16-channel telescopes are divided into two groups and installed in two sealed gas boxes. Both boxes are placed in a vacuum chamber and arranged in a fan shape to cover more solid angles. With LPDA, the low-energy (n, p) experiment was accomplished in 2020, and a good  $\Delta E$ -E particle resolution was obtained.

**Keywords:**  $\Delta E$ - $\Delta E$ -E telescope, "Back-n" white neutron source, particle identification