

## Development of Fast Neutron Detection Based on Multi-size Fiber Array

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Fast neutron detection using recoil proton track detector based on organic fiber array is widely used to detect single neutron event. To broaden its energy detection range, a multi-size fiber array structure is designed and evaluated under Monte-Carlo simulation in our work. A test detector is also developed, achieving a energy resolution of 43% at neutron energy of 14.1MeV generated by D-T neutron generator, and having a simulated energy response up to 100MeV. In order to reduce the detector volume, a compact structure of single-ended light output coupling directly with photomultiplier tube is then designed, tested and in continuous improvement.

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