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Fabrication, Quality Assurance, and Quality Control for PROSPECT Detector Component Production[1] IAN GUSTAFSON, Illinois Inst of Tech, PROSPECT (THE PRECISION REACTOR OSCILLATION AND SPECTRUM EXPERIMENT) COLLABORATION — The Precision Reactor Oscillation and Spectrum Experiment (PROSPECT) is an electron antineutrino ($\bar{\nu_e}$) detector intended to make a precision measurement of the ^{235}U neutrino spectrum and to search for the possible existence of sterile neutrinos with a mass splitting of Δm^2 on the order of 1 eV^2. As a short baseline detector, PROSPECT will be located less than 10 meters from the High Flux Isotope Reactor at Oak Ridge National Laboratory. As PROSPECT intends to search for baseline-dependent oscillations, physical segmentation is needed to better measure the interaction position. PROSPECT will therefore be a segmented detector in two dimensions, thereby improving position measurements. PROSPECT will be segmented into 154 (11x14) 1.2-meter long rectangular tubes, using optical separators. Each separator will consist of a carbon fiber core, laminated with optical reflector (to increase light collection) and Teflon (to ensure compatibility with the scintillator). These optical separators will be held in place via strings of 3D printed PLA rods called pinwheels. This poster discusses the fabrication and quality assurance (QA) procedures used in the production of both the PROSPECT optical separators and pinwheels.

[1]for the PROSPECT collaboration

Ian Gustafson
Illinois Inst of Tech

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