

Planning and CoordinationMACHINE TIME EXECUTIONREPORT ( 2001-4-2 CYCLE)

Experimental Group	T491	Reporter	Tsuyoshi NAKAYA Kyoto Univ.
Scheduled Period and Shift	Dec.4 – Dec. 11, 2001 18 shifts	Main, Sub, Para	
<p style="text-align: center;">K. Nishikawa, T. Nakaya, A. Ichikawa, T. Kobayashi, Y. Hayato,  Experimenters T. Ishii, H. Maesaka, M. Hasegawa, S. Yamamoto, I. Kato</p>			
<p><b>SUMMARY OF EXECUTION AND RESULTS</b></p> <p>We have studied the basic performance of extruded scintillator with Wave Length Shifting (WLS) fiber readout. The scintillator is a main element of the K2K upgrade detector, a full active scintillator tracker (SciBar).</p> <p>The results of the beam test are:</p> <ol style="list-style-type: none"> <li>1. We measured the light yield. Typically, 10 photo-electrons per channel are observed.</li> <li>2. We measure the attenuation length of the detector. A dominant contribution comes from the attenuation of the WLS fiber. The measured value is typically 3m</li> <li>3. We study the particle identification capability by <math>dE/dx</math>, especially to distinguish a proton from a pion. The mis-ID probability was measured to be less than 20% with 10 layers of the detector for particles with the momentum less than 1.2 GeV/c.</li> <li>4. With the <math>dE/dx</math> measurement, we reconstruct the proton momentum. For protons with less than 1.1 GeV/c, the momentum can be reconstructed with 10% precision.</li> </ol>			
<p><b>EXECUTED MACHINE TIME, BEAM CONDITION, DOWN TIME etc.</b></p> <p>Beam was very stable for our test period. We really appreciate for PS and KEK staff who maintained the excellent beam condition.</p>			
<p><b>COMMENTS</b></p> <p>Our beam test was successful. Most of the analysis are finished.  The result will be presented at Spring JSPS meeting in 2002.  The result guarantee the excellent performance of the K2K upgrade detector  With the extruded scintillator and WLS fiber readout.</p>			