To Office of Experimental Planning and Coordination

Date

MACHINE TIME EXECUTION

REPORT (CYCLE)

Experimental Group	High pt upgrade team of PHENIX (T496)	Reporter	Yasuo MIAKE, Univ. of Tsukuba
Scheduled Period and Shift	2001-4-2 (12/ 5-12/23) 20 shifts	Main, Sub, Para	12/12 – 12/20

Experimenters
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SUMMARY OF EXECUTION AND RESULTS

As a detector upgrade plan of PHENIX experiment, installation of aerogel Cherenkov counter have been proposed to increase the particle identification capability. With additional aerogel counter together with existing RICH and TOF counters, particle identification of hadrons upto 10 GeV/c can be achieved without any hole in momentum. Test experiment have been carried out at KEK-PS-pi2 beam line with visitors from Dubna, BNL and Yale Univ. Two types of counters are prepared for the test; Belle type (aerogel with 2 PMT readout on the side) and Mirror type (mirror behind the aerogel with 1 PMT readout). Effects of various reflectors and PMT's were tested. Using aerogel of n=1.017 , more than 20 p.e. obtained from Belle type with 3" PMT's and Goretex as reflector. Comparison of Aerogel from Matsushita and Novosibirsk gives interesting results; while similar results obtained when non-UV PMT was used, Novosibirsk aerogel provides 20 - 30 % larger signal than that of Matsushita with UV PMT (Quartz window). As is reported in literature, Novosibirsk aerogel seems to have better optical transmission in UV. (According to Sumiyoshi at KEK, master of aerogel, more complicated process is adopted for production of aerogel at Novosibirsk.)

EXECUTED MACHINE TIME, BEAM CONDITION, DOWN TIME etc.

20 shifts, PS-pi2 beam line, positive, 1 – 3 GeV/c,

COMMENTS

Based on the success of the tests, we would like to continue the tests in near future at KEK. We like to optimize the counter parameters for PHENIX experiment.