

STATUS REPORT

Chiranjib Dutta

During the period of my SURA fellowship, I was mostly stationed at Jefferson Lab working towards the preparation of my long awaited thesis experiment "Measurement of Single Target Spin Asymmetry in Semi-Inclusive $n^\uparrow(e, e'\pi^-)$ Reaction on a Transversely Polarized He^3 Target". Originally it was scheduled to run last year, but unfortunately due to the budget cut, it got delayed and now finally it ran in October 2008. As one of the most important parts of our experiment is the He-3 target, I have been spending most of my time in the polarimetry and the characterization of the target system. At the same time I have been involved in various aspects of the target related work to make sure that the system works fine during the experiment. I also tried different techniques to improve the performance of the polarimetry in the test lab. Before the experiment, we almost finished all the tests involved in the target system and moved to Hall A to install from the scratch. One very interesting project, I have been involved with, is the "vertical compass" developed in my department at the University of Kentucky. My supervisor Dr. Wolfgang Korsch developed this idea of the "vertical compass" which can measure the vertical field in our target region which is actually very very important for our experiment. We need to know the vertical field direction within 0.4 degree. This was a very interesting and challenging project and we spent a lot of time working on it.

On the detector side, I have been involved in couple of more experiments that ran in Fall 2007 and Spring 2008. As a contribution to the "Coulomb Sum Rule" experiment that ran in last Fall in Hall A, I analyzed data in terms of the calibration of the Cerenkov detector in the Left HRS. That was a great learning experience for me under the supervision of Dr. Vincent Sulkosky. After that, I

also tried to get more experience with detector analysis in the "Pion Threshold Production" experiment that ran in spring 2008. During this period, I had a couple of chances to present my work in the Transversity Collaboration meeting and also in the Coulomb Sum Rule Collaboration meeting. I intended to go to the spin conference in London held in April 2008, but due to my Visa related problem, I could not afford to go there.

Finally we successfully completed the installation and other related tests of our polarized He-3 system in the second week of October 2008 under the supervision of Dr. Jian Ping Chen. Then we started taking data in the second week of November 2008. In addition to the target work, I was taking care of few components of the Left High Resolution Detector (LHRS) under the supervision of Dr. Vincent Sulkosky. We finished our data taking in the first week of February 2009. Now I am mostly involved in the analysis of the target as well as the LHRS calibration. Our online monitoring of the data during the experiment ensures the good quality of our data. I plan to finish up my analysis at the end of this year and graduate in the spring of 2010.

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