

Jefferson Lab Weekly Briefs November 1, 2007

Physics

Hall A has completed the installation for experiment E05-110, a precision measurement of longitudinal and transverse response functions for a variety of nuclei in order to test the Coulomb Sum Rule. A sodium iodide (NaI) calorimeter was designed and assembled specifically for this experiment; it has been installed in the focal plane of the left High Resolution Spectrometer to measure the energy of scattered electrons in order to sensitively identify background from rescattering off the walls of the spectrometer vacuum chamber. The experiment started taking production data on Oct. 27.

The Frozen Spin Target has been re-installed in Hall B and cooled down to 0.9 K in the He-4 mode. The plan is to measure the thermal equilibrium signal using the 5 Tesla polarizing magnet and the static polarization for absolute calibration. Once this has been successfully completed, the target sample is ready to be dynamically polarized, and the temperature lowered to 50 mK in the He-3/He-4 dilution mode to "freeze" the nucleon spins.

Commissioning has started for the G_{Ep} experiments (E04-108: G_{Ep}/G_{Mp} form factor ratio measurement to $Q^2 = 9 \text{ GeV}^2$ and E04-019: two-photon exchange contributions to elastic ep scattering). The BigCal electron detector and the High Momentum Spectrometer focal plane polarimeter are behaving as expected, and calibration data are being acquired.

Free-Electron Laser (FEL)

The drive laser for the gun test stand is ready for installation, while the new hutch for this laser is in fabrication. A draft of plans and schedules for the next three months includes readying GTS and FEL guns and beamlines for operation.

JLab's Safety Numbers (Nov. 1, 2007)

43 Days since Last Recordable Accident
(JLab Record: 319)
362 Days since Last Lost Workday Accident
(JLab record: 455)

Environment, Safety, Health & Quality

We're already entering the cold and flu season. Both illnesses are caused by viruses that infect the nose, throat and lungs that are usually spread when an infected person coughs or sneezes. To avoid contracting or passing on a cold or the flu, follow these Centers for Disease Control (CDC) tips.:

- Cover your mouth and nose when you sneeze or cough (with tissue or sleeve, not hands!)
 - Wash your hands with soap and hot water for at least 20 seconds
 - Avoid touching your eyes, nose, or mouth
 - Get plenty of sleep
 - Drink plenty of fluids and eat nutritious foods
- Cold and flu symptoms include: fever (usually 101 and above), headache, cough, sore throat, runny or stuffy nose, muscle aches and extreme tiredness. If you become ill, please stay home. For additional information, contact Occupational Medicine at x7539, your personal physician, or the [CDC web site](#).

• **SLAC ISM Report Lessons Learned** - JLab just completed a scheduled accelerator maintenance down (SAD) without a reportable injury. This is certainly commendable performance and all involved staff are complimented for their attention to work planning and working safely. However we need to keep ourselves concentrating on continuously improving. One aspect of continuous improvement is to learn from other similar organizations. A JLab team, with representatives from all lab organizations, examined the Stanford Linear Accelerator Center (SLAC) Integrated Safety Management (ISM) report this summer to determine how existing lab safety protocols and procedures would mitigate any similar SLAC-type findings at JLab. The team developed [recommendations](#), and an action plan is in place to address our team's excellent recommendations. These actions have been assigned to responsible staff and are being tracked through the CATS system.

Accelerator

Several injector studies, including a Mott measurement, were completed. The Mott indicated 84 percent polarization with the C laser. The newly installed magnetic shielding in the injector shows significant reduction in 60 Hz noise. Two raster magnet coils were replaced in the Beam Switchyard raster. Halls A&C started taking continuous wave beam at 535 MeV per pass. Minor problems were overcome, and many minor adjustments were made to the beam until both halls were satisfied with beam quality. Day shift on Oct. 30 started an energy change to 500 MeV per pass. This effort continued through swing shift.

Theory Center

Theorists at JLab, Argonne National Laboratory and Tokai University in Japan have completed a sophisticated calculation of the nucleon's transversity quark distribution function, [arXiv:0708.3246 \[hep-ph\]](https://arxiv.org/abs/0708.3246). They find that the transversity and helicity distributions are similar in magnitude, in contrast to the only experimental extraction, which finds that the u-quark transversity distribution is potentially far smaller than its helicity counterpart. If this experimental result persists, it will represent an important challenge to theoretical physicists at JLab and elsewhere.

Computing and Networking Infrastructure

• Three Strikes, You're Out! (awhile)

In response to our recent computer security review, the Windows domain was configured to temporarily disable your account if you incorrectly enter your password three times within 15 minutes. If this happens, you will see a message indicating that your account has been locked out. The account will unlock automatically after 15 minutes. Logins to many web-based applications such as Insight, Time Sheets, and Requisitions are authenticated on Active Directory (aka Windows domain), where you'll see the same error message for the same reason. Be careful when you log in: check your Num Lock and Caps Lock keys and type carefully. If you are unable to log in again after

15 minutes, please call or visit the Help Desk at x7155, CEBAF Center F200.

• Microsoft Office 2007 and Windows Vista

The JLab IT Division will offer classes on Nov. 28 on two new software packages: one on the major differences between Microsoft Office 2003 and Microsoft Office 2007 and another on the major differences between Windows XP and Windows Vista. The Microsoft Office 2007 suite will be available for download and installation by JLab CUE Windows systems in mid-November. Anyone who uses this software frequently is encouraged to attend a training session, since the new version is dramatically different than older versions. See the [full announcement](#) for details.

Announcements

• Veterans Day Salute

In recognition of the many people at JLab that have served in the Armed Forces, the Lab will have cake in the CEBAF Center lobby from 11:30 a.m.-2 p.m. on Monday, Nov. 12, for all veterans. Sign the board and enjoy a piece of cake.

• Calling all Hoopsters!

The JAG is sponsoring a basketball team to play in the Newport News City League during the winter season. The team is open to all staff and Users. An organizational meeting is set for Thursday, Nov. 1 at 5 p.m. in the CEBAF Center cafeteria. More info is on the [website](#).

• TIAA-CREF Retirement Counseling

To be placed on a waiting list for the next available date, visit the [TIAA-CREF website](#) and click on "Schedule a meeting or locate a seminar in your area." The sessions will be held in VARC 22A.

JLab Calendar of Events

Nov. 4: Daylight Saving Time ends
Nov. 12: Veterans Day (Observed)
Nov. 22-23: Thanksgiving holidays
Dec. 4: Science Series Lecture: The Laser at 50
Dec. 24-Jan. 1: Holidays/Shutdown Days