THE NUCLEAR SCIENCE AND SECURITY CONSORTIUM AT MSU

Contributed by Sean Liddick

The Nuclear Science and Security Consortium (NSSC) is entering its seventh year at the NSCL. The NSSC is led by the University of California at Berkeley and is funded by the National Nuclear Security Administration (NNSA). The consortium has eight universities including University of California at Berkeley, Irvine, and Davis, University of Nevada at Las Vegas, Texas A&M University, University of Tennessee – Knoxville, George Washington University, and Michigan State University. The consortium also includes five national laboratory partners: Lawrence Berkeley, Lawrence Livermore, Los Alamos, Oak Ridge, and Sandia National Laboratories.

The mission of the NSSC is to support the nation's nuclear security agenda, recruit and train students and postdoctoral researchers in relevant nuclear disciplines in preparation for research and leadership roles at the U.S. national laboratories. The research thrusts of the consortium include nuclear and particle physics, radiochemistry, nuclear engineering, and instrumentation. Within each of these research thrust areas are cross cutting focus areas in nuclear education, nuclear data, modeling and simulation, and nuclear security policy.

The local PIs at MSU include S.N. Liddick, A. Gade, H. Iwasaki, and A. Spyrou. Currently, ten graduate students (J. Ash, D. Chrisman, A. Dombos, B. Elman,

Members of the NSSC at MSU. Left to right (back row) S. Liddick, H. Iwasaki, D. Chrisman, K. Stiefel, R. Ready (front row) A. Dombos, J. Ash, B. Elman, A. Gade, T. Redpath, B. Longfellow, D. Votaw, S. Lyons

B. Longfellow, D. Votaw, A. Palmisano, R. Ready, T. Redpath, and K. Stiefel) and one postdoctoral researcher (S. Lyons) are members of the NSSC at Michigan State University, see picture. All graduate students have a mentor at the national laboratories. The students and mentors have wide-ranging discussions from the best analysis procedure of the student's thesis data to the direction of the student's career path. The members of the consortium are provided an opportunity to travel to the national laboratories and work closely with one of the staff scientists on a research project and engage in current topics in nuclear security for a period around two to three months. Former members of the MSU NSSC have gone on to a variety of positions in the national laboratories, industry, and academics.

CS-STUDIO TOOLS AT REA3

Contributed by Tasha Summers

The graphical user interface software CS-Studio is part of the controls toolkit of the laboratory. To complement the basic status and control pages, several specialized tools have been implemented to improve the operator experience by automating or simplifying complex tasks.
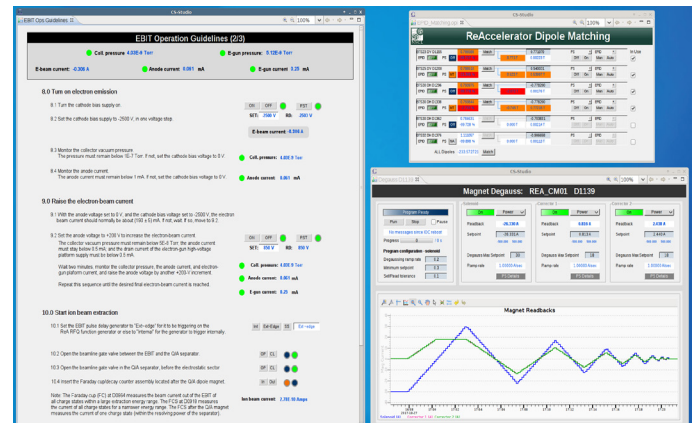
Screenshot showing specialized CS-Studio pages: EBIT startup (left), dipole feedback (right-top), and magnet degaussing (right-bottom).

A guided walkthrough, or procedure page, is one part of this process. The EBIT (Electron Beam Ion Trap) startup pages, shown in the screenshot (left side), consolidate the status information and control tools needed to operate the device. The combination of having all the necessary pieces together with instructions, presented in order, allows non-experts to confidently and safely complete the startup procedure.

Automating tasks by incorporating the logic into control system servers (EPICS IOCs) is another method for simplification. The screenshot (right side) shows two CS-Studio pages that are used to configure and run other specific tasks. In the first example, feedback loops have been implemented to automatically adjust dipole magnet power supplies to keep the magnetic field strength constant over time. In the second example, the process of degaussing magnets is performed with a python script, which is configured and controlled through the CS-Studio page.

Improving the usability of these tools is a continuing priority for ReA that benefits operations by maintaining a consistent machine state while decreasing equipment startup and operator training time and will be applicable to FRIB operations.

HOLIDAY GIFT SHOP

The FRIB/NSCL Gift shop is getting ready for the holidays! Many of the most popular products have been restocked, including t-shirts and polos. Some items are on clearance, and a new item will soon be added by popular demand: an insulated tumbler. Visit the website or University Stores to find some unique gifts!

FLAMMABLE LIQUIDS

Improper storage and handling of flammable liquids, and failure to recognize and control ignition sources, have accounted for many accidents involving flammable liquid use. Statistics indicate that more than 20% of industrial fires and 15% of office fires start with the ignition of a flammable or combustible liquid.

A combustible substance is one that catches fire and burns easily; a flammable substance is one that continues to burn even after the ignition source is removed. Flammable liquids burn with intensity. This accounts for the rapid heat buildup and how fast the fire spreads. It is important to realize that the liquid itself does not burn, but its vapors, which are often invisible and generally heavier than air. The vapors settle to the floor and are moved by air flow. Always consult the safety data sheet (SDS) provided by the manufacturer to determine the flammability of a particular liquid.

When storing or working with flammable liquids, take precautions to eliminate ignition sources such as:
- Open flames
- Electrical switches
- Open motors
- Static electricity
- Friction and mechanical sparks
- Heat guns
- Cutting and welding
- Radiant heat

What flammable liquids are you using or storing? Are there any ignition sources around? Take a moment to inspect your work area and ensure all flammable liquids are properly labeled and stored in appropriate yellow cabinets.

SEMINAR
- **MONDAY, NOV 20 AT 3:00 PM**
  Research Presentation
  1221B Conference Room
  Chun Yuen 'Tommy' Tsang
  Tentative Thesis Title: "Constraining the symmetry energy with heavy-ion collisions"

PEOPLE AT THE LAB
- Raylin Pellatt and Shivang Patel are new student employees in the Lab.
- Jaspreet Randhawa is a new Research Associate.
- Tanvi Ashwarya joined the Lab as a Software Engineer.
- Eleazar Gutierrea is a new Radio Frequency Engineer.
- Mark Spieker joined the Lab as a Research Associate with Alexandra Gade's group.