JRML Job Responsibilities  
Revised November, 2006

Mike Wells

Consultation outside of JRM—Consult with outside agencies on campus regarding vacuum and welding. Design & fabricate. Monies from these projects fund welding/special tool inventory.

Design/fabrication/modification of experimental equipment—These are jobs that do not require the physics machine shop or that require modification after initial construction by the machine shop.

Electrical systems—Design, layout, troubleshoot & repair electrical power circuits that do not require University Facilities involvement.

Experimental equipment repair—Evaluate malfunctioning lab equipment for in-house repair. Refer major electronics problems to Scott Chainey.

Helium mass spectrometer leak detector—Maintains & operates. Instruct lab personnel on proper use.

Power recoveries in the new lab—Responsibility shared with Al Rankin.

Roughing pumps (direct drive) —Shared with Al Rankin until a student can be trained to do repair.

Supervise undergrads—Manage student worker(s) in maintenance & up-keep of lab & equipment (with Al Rankin).

Vacuum systems---Design, fabricate, install, troubleshoot, repair & leak detect (includes all vacuum components in JRM lab). Educate and assist researchers on proper vacuum design and techniques. Specifically responsible for maintenance and repair of all turbo pumps in the laboratory.

Valves—Repair needle, toggle, ball, gate, flow, diaphragm, etc. valves.

Welding services---(TIG vacuum quality) for JRM, machine shop and other KSU departments.
Al Rankin

Beam lines and systems (ion and laser)—Assist in construction.

CAD drawings—Create as needed for JRM personnel.

General assistance—Assist faculty as needed with experiments, chamber design, testing, and construction. Assist other JRM staff as needed on any system related to general operations, i.e. Tandem, sources, chillers, compressed air systems, water systems, electrical power, etc.

High energy physics detector testing—Assist in beam time runs and target chamber setup.

KLS Responsibilities—On weekdays when KLS is in operation, KLS work will be Al’s highest priority.

- Alignment, troubleshooting, cleaning, and operation of the Femtosecond Oscillator Laser source.
- Alignment, troubleshooting, cleaning, and operation of the KLS multipass amplifier laser.
- Alignment, troubleshooting, cleaning, and operation of Evolution 30 amplifier pump lasers.
- Alignment, troubleshooting, cleaning, and operation of oscillator Verdi 6 pump laser.
- Ensure operational readiness of peripheral equipment to above listed systems.
- Scheduling of all KLS laser beam use, subject to final approval by Kevin Carnes.
- Provide support to all KLS users.
- Maintain service contracts for equipment under coverage.
- Design and install peripheral support systems required for expansion and new equipment setup.
- Work on development and implementation of additional KLS capabilities.
- Ensure operational readiness of and filling of LN system for KLS.
- Ensure operational readiness of KLS air conditioning equipment.
- Ensure operational readiness of KLS air filtering equipment.
- Ensure operational readiness of laser cooling chillers (3).
- Assist Zenghu Chang with daily operations or modifications within the KLS lab and its equipment.
- Maintain supplies and consumables needed for operation of KLS.
- Provide liaison between KLS and JRM visitors and outside users.
- Report and update JRM faculty, staff, and users of KLS activity at weekly Nuts and Bolts meeting.

Liquid helium—Contracts, dewar storage, ordering, and handling.
Liquid nitrogen—Contracts, storage, ordering, and JRM LN2 distribution systems.

Power recoveries in the new lab—Responsibility shared with Mike Wells.

Roughing pumps (direct drive)—Repair and maintain, shared with Mike Wells until a student can be trained to do repair.

Supervise undergrads—Manage student worker(s) in maintenance & up-keep of lab & equipment (with Mike Wells).

Vacuum systems—Assist other personnel in repair and installation of vacuum equipment and accelerator components.

Welding services—(TIG vacuum quality) for JRM, machine shop, and other KSU departments. Monies from outside jobs funds welding/special tool inventory.
Bob Krause

Air compressors—Maintains lab air compressors and compressed air system.

Automatic drain system—Maintains laboratory automatic drain system.

Carbon foils (tandem terminal and post stripper foils)—Floats or oversees student who floats supply of foils for accelerator and experimental use.

Chiller system—Oversees the operation and maintenance of laboratory chiller system, including the chiller compressors, the closed loop water resistivity system (including cleaning and descaling of water-cooled systems like pumps and power supplies, repairing leaks, etc.), and the laboratory chiller water filtration system.

Closed circuit T.V.—Maintains the laboratory closed circuit T.V. monitoring system.

Instructs personnel on

Condenser cleaning—Cleans the outside chiller and air conditioning condensers four or five times a year, or whenever needed.

Cryopumps—Repair and maintain.

Diffusion pumps and controllers—Maintains all oil diffusion pumps and their controllers.

ECR Ion Source—Provides beam to first Faraday cup for users, maintains ion source, documentation, and operation logs.

Evaporator—Maintains and operates the evaporator in room 1.

Facilities manager—Oversees the appearance and the daily building maintenance of the entire laboratory. This is not to include cleaning up after personnel who have cluttered an area. Oversees a student who does much of the actual work including but not limited to:

- Checks all lights and changes bulbs whenever needed.
- Empties trash every morning and throughout the day.
- Sweeps and mops the laboratory floors.
- Cleans and maintains outside roof drains.
- Vacuums carpet in laboratory control room.
- Sets wall clocks in the laboratory, etc.

Foreline exhaust system—Maintains all foreline exhaust systems for the laboratory, including running exhaust lines for new pumps.

Fume hood—Maintains the fume hood near the tandem ion sources.
Gas bottles/regulators—Instructs researchers in proper procedure for connecting pressure regulators to gas systems, including all the necessary tubing, valves, and gauges. Insures that gas bottles are properly secured to comply with safety regulations and instructs personnel on proper procedure for moving bottles.

Glass beader—Maintains the glass beader in the student shop.

Liquid nitrogen dewar filling—Manages LN dewar filling for personnel from other KSU departments.

Manuals—Insures that electronics manuals are properly filed in the filing cabinets in the control room, labeling new folders as new modules are acquired.

Painting—Paints or oversees student painting of conduit, floors and walls according to university codes.

Power recoveries—Primary person responsible for recovering from power failures and scheduled shutdowns. Responsible for old lab power specifically and for contacting those responsible for new lab power.

Power supplies—Responsible for maintenance of all large water-cooled power supplies in the laboratory, with assistance from Scott Chainey. This includes the analyzing, inflection, and switching magnet supplies.

Roughing pump oil cart—Maintains cart to facilitate roughing pump oil replacement.

Roughing pumps (belt drive)—Maintains belt drive rotary vane roughing pumps in the laboratory.

Safety: Works closely with Ron Bridges of K.S.U. public safety for things associated with the laboratory.

• Performs monthly safety checks of laboratory equipment. Includes emergency lights, exit signs, first aid kits and supplies, fire extinguishers.
• Performs weekly safety equipment checks. Includes fixed area oxygen monitor calibration, handheld oxygen monitor, handheld radiation survey meters, pocket dosimeters, equipment room drench station, penthouse drench station, fire alarm status panel, water collection sites.
• Performs semi-annual safety equipment checks. Includes fixed area oxygen monitors inert atmosphere test, handheld oxygen monitor inert atmosphere check and set point check.
• Disposes of chemicals and all related environmental hazards associated with the laboratory.

Service contracts with University Facilities—Coordinates contracts on equipment such
as electrical systems, air conditioning, heating system, and laboratory furnishings serviced by University Facilities. Supervises facilities personnel when they are working in the laboratory. Works with laboratory personnel to design systems in preparation for facilities work.

Tandem accelerator—Maintains accelerator and keeps current maintenance and operation logs.

Tandem ion sources (sputter source and diode source) —Maintains and operates each day for laboratory experiments. Keeps current source logs and maintenance logs.

Ultrasonic Cleaner in clean room near the LINAC—maintains de-ionized water system, responsible for instructing personnel in operation of cleaner.
Charles Fehrenbach

**Bicycle maintenance**—Maintains used bicycles in the laboratory for visitors.

**EBIS operations**—
- EBIS cryogenics
- EBIS development
- EBIS maintenance
- user beam tuning
- user support

**Safety**—
- interim laser safety officer (duties not defined)
- lab monitoring
- quarterly safety systems checks

**Stand-alone ion source**—development/support

**Machine shop liason**—
- design consulting
- design review
- job scheduling/bookkeeping
Scott Chainey

Cable construction and cable running—Responsible for making all cables in the laboratory and overseeing their running in existing cable trays, or installing new cable trays where necessary.

Electronics construction—Constructs basic electronics modules for laboratory accelerator/ion source/laser systems and experiments. When possible, construction will be based on an existing design or board layout, although detailed descriptions may suffice when necessary. Constructs single and/or double layer (non-plated through) circuit boards in-house for simple designs. Complicated and/or time consuming designs will be taken to the KSU Electronics Design Lab.

Electronics repair—Responsible for repair of all laboratory electronics, both commercial and in-house. If unable to repair locally, oversees returning module to company for repair. This includes both research electronics and auxiliary systems, such as pump controllers, ionization gauge controllers, etc.

JRM Electronics Shop—Maintains JRM electronics shop, assists researchers and staff in finding electronics components, and supervises electronics shop student worker(s).

Laboratory PA System—Maintains JRM Lab PA system, including amplifier, speakers, and microphones, and performs upgrades and expansions as necessary.
**Vince Needham**

JRML webmaster

Labview event-mode data acquisition — Maintain code and assist researchers with understanding/modifying the code.

PC hardware maintenance — Especially for special application machines in the lab not easily handled by the PCSC.

System and controls programming — Including general purpose assistance with Labview control software programming.

Windows system and network administration — Principally for the lab but frequently collaborating with the Physics Computing Support Center (PCSC) on system-wide issues.

**Carol Regehr**

Film badges—
- Maintains an inventory of all laboratory radiation film badges.
- Issues all new film badges to incoming laboratory personnel.
- Issues temporary TLD film badges.

General lab tours — Schedules and/or conducts as needed

Lab key cards — Issues key cards for laboratory keys.

Safety—
- New personnel training
- Laser and radiation safety recertification tests