

JRML Job Responsibilities **Revised August, 2018**

Chris Aikens

Air conditioning and filters—Ensure operational readiness of JRM general and laser room air conditioning and air filtration systems.

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

C.A.D. drawings— Use Solidworks to make detailed shop drawings of projects, train others as needed in using CAD software, maintain software license (versions, support). Responsibility shared with Justin Millette.

Design—Design and install peripheral support systems required for expansion and new equipment setup. Has special expertise in laser and optical systems.

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

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

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.

Gas ordering—Orders all gas used in the laboratory with the exception of highly specialized research gases, in which case will aid experimentalists in ordering.

Helium mass spectrometer leak detector—Maintains & operates. Instruct lab personnel on proper use. Shared responsibility with Justin Millette.

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

Power recoveries—Responsibility shared with Justin Millette, Charles Fehrenbach, and Vince Needham.

Service contracts (external)—Maintain service contracts for JRM equipment under coverage.

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 and any private contractors when they are working in the laboratory, including answering questions regarding the work. Works with laboratory personnel to design systems in preparation for facilities work.

Supervise temporary workers— Manage temporary/part-time worker(s) in maintenance & up-keep of lab & equipment (with Justin Millette).

Supplies—Maintain supplies and consumables needed for operation of JRM.

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.

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

Justin Millette

Air compressors—Maintains lab air compressors and compressed air system including the automatic drain system.

C.A.D. drawing—Use Solidworks to make detailed shop drawings of projects. Responsibility shared with Chris Aikens.

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.

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 compressed gases—Transfers gases from larger to smaller gas bottles, mixes gases for specialty targets, etc.

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

Fume hood—Maintains the fume hood near the tandem ion sources.

Helium mass spectrometer leak detector—Maintains & operates. Instruct lab personnel on proper use. Shared responsibility with Chris Aikens.

Power recoveries:— Primary person responsible for recovering from power failures and scheduled shutdowns involving both old and new lab power. Responsibility shared with Chris Aikens, Charles Fehrenbach, and Vince Needham.

Roughing pumps (direct and belt drive) —When possible, train and supervise part-time technical staff to do repair.

Sump pump system—Maintains laboratory sump pumps.

Supervise temporary workers—Manage temporary/part-time worker(s) in maintenance & up-keep of lab & equipment (with Chris Aikens).

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

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

Charles Fehrenbach

ECRIS operations—

- ECRIS development
- ECRIS maintenance
- user beam tuning
- user support

Film badges—

- maintains an inventory of all laboratory radiation film badges.
- maintains general use dosimeters.

General lab tours—Schedules and/or conducts as needed

Machine shop liason—

- design consulting
- design review
- job scheduling/bookkeeping

PULSAR operations—

- maintains PULSAR laser system
- weekly tune up of laser system
- maintains PULSAR common beam line
- management of PULSAR laser facility

HITS operations—

- maintains HITS laser system
- weekly tune up of laser system
- maintains common beam line
- management of HITS laser facility

Safety— Lab safety officer. Works closely with Ron Bridges of KSU public safety for things associated with the laboratory.

- annual area radiation monitor calibrations and checks of handheld radiation survey meters
- lab monitoring
- laser safety officer
- laser and radiation safety recertification tests
- new personnel training
- toxic gases management
- performs periodic checks of exit sign lights and first aid kits and supplies
- disposes of chemicals and all related environmental hazards associated with the laboratory

Stand-alone ion source—Development/support

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. May do repair for other departments on campus based on our standard rates as time allows.

JRM Electronics Shop—Maintains JRM electronics shop, assists researchers and staff in finding electronics components, and supervises any 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.

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

Vince Needham (half-time in JRML, half-time in PCSC)

JRML webmaster

Lab key cards—Issues key cards for laboratory keys.

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

Power recoveries—Responsibility shared with Chris Aikens and Justin Millette.

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

Visiting scientist coordinator — Insures that lodging keys are picked up and delivered to visitors when they are arriving at a time that prevents them from doing it themselves, provides visitors with temporary key cards, etc.

Windows system and network administration—Principally for the lab in addition to his work with the Physics Computing Support Center (PCSC).

Hourly Employee (Currently Calvin Hodges)

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

Drain clearing—Make sure the roof drain is clear of debris.

Facilities maintenance—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. Work includes but is 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

Filter maintenance—Changes Aeon unit filters monthly, works with facilities to maintain HEPA filters in HITS and PULSAR.

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

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

Ultrasonic Cleaner in CW52—Maintains unit, responsible for instructing personnel in operation of cleaner.