



Physics and Astronomy Machine Shop

From initial concept to final cut, a full service machine shop

Department of Physics and Astronomy

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FABRICATION SERVICES

Department of Physics and Astronomy- Machine Shop



The Physics Machine Shop offers the campus community a wide array of fabrication services for your research needs. We can assist in your design requirements from initial concept to final components and assemblies. Manufacturing capabilities include CNC milling, conventional milling, lathe (turning), grinding, GTAW and SMAW welding and more. CAD/CAM platforms include AutoCad, SolidWorks, MasterCam, and Bridgeport EZCAM. We specialize in ultra high vacuum and structural components, particularly "one-offs" and our shop staff is familiar with the machining of exotic materials such as NbTi, Tantalum, Molybdenum, ceramic, Macor, oxygen free copper, as well as stainless steel, brass, aluminum and plastics. If the fabrication of specialized mechanical laboratory equipment is required, or if existing equipment needs modification or repair, contact the Physics Machine Shop. Each machine shop staff member has 25+ years experience in design and fabrication processes. Labor rates are \$48 per hour plus material costs when using NYS or Research Foundation funding, all other clients are charged \$62 per hour plus material. If specialized tooling is required an added fee may be incurred.



**DEPARTMENT OF PHYSICS
AND ASTRONOMY
MACHINE SHOP AND
FABRICATION SERVICES**

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PHYSICS DEPARTMENT SHOPS AND SERVICES

The Department of Physics Machine Shop provides to the SUNY campus community a wide range of technical support for mechanical systems design as well as extensive manufacturing capabilities. Our Machine Shop is particularly well suited for the design and manufacturing of research and prototype systems. We can assist in your design requirements from initial concept to final components and assemblies.

Machine Shop:

The Machine Shop is staffed by five first-class machinists with an average experience level of 25 years.

A full range of modern machine tools:

- 4 CNC (Computer Numerical control) Milling machines.
- 11 Standard manual milling machines (includes one Series II).
- 7 Lathes (includes 3 Hardinge Toolroom, 3 Engine, Nordic, and LeBlonde).
- 2 Precision Surface grinders.
- 5 Band Saws (2 horizontal Kalamazoo, 3 vertical DoAll).
- 6 Drill Presses (includes one Commander Johansson Power Tap).
- Full Sheet metal shop (6'shear, 6'brake, 6'roller, Punch presses, notcher, etc.).
- 3 Miller welding machines (GTAW)
- Full wood working shop (table saw, planers, belt sanders, chop saw, formica, etc.).
- More...

Our shop is available to provide clients a wide extent of precision fabrication services from prototype one-offs to production runs.

- Precision machining in all materials (stainless, aluminum, brass, steel, copper, ceramics, plastics and exotics)
- Highest quality (GTAW) gas tungsten arc welding (stainless, aluminum and steel from .010 inches to 1 inch thick) for all fabrication requirements ranging from ultra high vacuum chambers to large structures
- CAD/CAM platforms include AutoCAD, SolidWorks, MasterCam and Bridgeport EZCAM
- Precision assembly and test available for all systems manufactured (gear trains, power transmission, high vacuum, housings, electronic equipment racks, motion devices, etc.)
- Heavy manufacturing capability (5 ton crane, 2 ton fork lift truck, multiple 2 ton chain hoists)
- Wide variety of raw material in stock (stainless, aluminum, copper, steel, plastics, machinable ceramics and fiberglass) for fast "turn-around" on manufacturing services is available
- Consulting services available for manufacturing, tooling and assembly design requirements

Physics and Astronomy Machine Shop and Services Client Base

Research Work Projects for Physics and Astronomy Department Research Groups:

- Astronomy
- Atomic/Molecular/Optical Physics
- Condensed Matter Physics
- HEG Physics
- Low Temperature Solid State Physics
- NSLS-X Ray Instrumentation/Spectromicroscopy
- Nuclear Structure Laboratory/VDG
- Riken/PHENIX Upgrade
- X-Ray Physics

Research Work Projects HSC Research Departments:

- Biomedical Engineering
- Dermatology
- Medical Image Lab
- Nephrology
- Pediatrics
- Pharmacology
- Radiation Oncology
- Radiology
- University Microscopy Imaging Center
- Neurobiology
- Neurobiology and Behavior
- Microbiology
- Center for Advanced Technology (CAT)

Research Work Projects for Other Campus Research Departments:

- Anatomical Science
- Biochemistry
- Center for Biotechnology
- Chemistry
- Electrical Engineering
- Geo Sciences
- Center for Molecular Medicine
- Marine Sciences
- Material Science
- Material Science Center for Thermal Spray Research Polymer Group
- Mechanical Engineering
- Medical Image Lab
- Oral Biology & Pathology
- Psychology and Biophysics

Research Work Projects for Affiliated Research Groups and Incubator Companies;

- Brookhaven Technology Group
- Massachusetts Institute of Technology
- University of California, Berkeley
- Long Island High Technology Incubator
- Quantronix Corp. - Research and Development
- EELE Laboratories - Research and Development
- East Coast Optical Laboratories