

TITLE: Wien Filter

OPDIV: NIST, Physical Measurement Laboratory (PML)

This is a SOURCES SOUGHT NOTICE to determine the availability of potential businesses in accordance with FAR 7.104(d). The potential business will need to demonstrate the capability to perform all facets of the work described below.

The sole intent of this Sources Sought Notice is to obtain capabilities for set-aside and procurement planning purposes. **This is not an invitation for bid, request for proposal, or other solicitation, and in no way obligates the National Institute of Standards and Technology (NIST) to award a contract.**

BACKGROUND

The Atomic Spectroscopy Group (ASG) performs spectroscopic experiments wherein a specific charge state of an atom must be isolated in ultra-high vacuum for precise measurements. A Wien Filter is required for separating the various charge states produced in the ion source, in order that only one charge state be extracted to an apparatus where they can be captured and stored. The device operates to select a specific charge state as the output based upon the velocity-dependent cancellation of forces acting on certain charged particles passing through a region of crossed electric and magnetic field.

CONTRACTOR MINIMUM CAPABILITES REQUIREMENTS:

To meet the purpose and objective of this requirement, the Contractor shall provide documentation demonstrating the capability to provide one Wien Filter. In addition, the offered system shall be capable of meeting or exceeding the salient characteristics below as well as providing delivery of the proposed system on-site at the NIST facility in Gaithersburg, MD.

1. Instrument Capabilities.
 - a.) The Wien filter shall have the capabilities to operate with a magnetic field strength of 500 mT, which shall be generated by permanent magnets.
 - b.) Shall include an additional magnet (150 mT or 200 mT) to change operating conditions.
 - c.) The device shall have the capacity to be compatible with ultra-high vacuum operation.
 - d.) The device shall have vacuum-compatible electrical feedthroughs of the SHV type to allow for applying the electric field in the Wien filter.
 - e.) Entrance and exit slits to allow for a resolution of 40 installed and aligned at the factory. For other anticipated applications, pairs of slits for a resolution of 80 and 20 shall also be included (but not installed). *Note: Resolution is $m/\square m$ for analyzing*

isotopes; alternatively, for a given isotope, resolution is $q/\Delta q$ in separating the charge states q and $q+\Delta q$.

- f.) The system shall be compact, with the length not exceeding 25 cm along the direction of charged-particle beam propagation.
- g.) The electrical power consumption shall be less than 150 Watts.
- h.) The total weight shall not exceed 12 kg.
- i.) The Wien filter shall be accompanied by operating manuals, test data, and certificate of conformance.
- j.) The device shall withstand a bake-out of at least 120 Celsius.
- k.) Inlet flange shall be 6 inch Conflat or DN100CF.
- l.) Outlet flange shall be DN100CF.
- m.) Ultimate base pressure shall be about 10^{-10} mbar
- n.) Ion beam energy (range of interest) – $2q - 10q$ keV (where q is the ion charge state).
- o.) The device shall have the capacity for any operating position.

TRADE AND SERVICE

1. Vendors should include information regarding warranty availability, duration and coverage.

Capability statements must demonstrate the minimum requirements outlined above. Please address each in the order listed above.

Please provide the follow Business information:

1. DUNS Number
2. Company Name
3. Company Address.
4. Company Point of Contact, phone number and email address
5. Type of company under NAICS, as validated via the System for Award Management (SAM). Additional information on NAICS codes can be found at www.sba.gov. Any potential government contract must be registered on the SAM located at <http://www.sam.gov/index.asp>.
6. Corporate structure (corporation, LLC, sole proprietorship, partnership, limited liability partnership, professional corporation, etc.);
7. Current GSA Schedules appropriate to this Sources Sought
8. Current Government Wide Agency Contracts (GWACs)
9. Point of Contact, phone number and email address of individuals who can verify the demonstrated capabilities identified in the responses.
10. Place of Manufacture of the offered equipment.

Interested parties having the capabilities necessary to provide the stated requirements may submit capability statements via email or regular mail to the point of contact listed below.

Responses shall be limited to **10 pages**. Responses must be received not later than **3:00PM Eastern Time, August 05, 2016**. Capability statements will not be returned and will not be accepted after the due date.

Documentation should be emailed to: Erica.Miller@nist.gov