MEP National Network™

COMPLETE THIS FORM TO INITIATE SUPPLIER SCOUTING

MEPNN Supplier Scouting Opportunity Synopsis

☒ *The submitting entity agrees to notify NIST MEP of the status of actions taken as a result of this scouting instance within 30 days after receiving a results report. For instances where the submitting entity is an MEP Center submitting on behalf of a client, the MEP Center agrees to notify NIST MEP on behalf of their client. For instances where the submission is direct from federal/state agencies or is a private company, the submitting federal/state agency or private company entity agrees to notify NIST MEP. Notification should be via email to scouting@nist.gov, indicating the following:

- Contact with matches identified in report complete and supply contract awarded, process complete
- Contact with matches identified in report complete and no supply contract awarded, process complete
- Contact with matches identified in report complete and supply negotiations underway, process in progress
- Contact with matches identified in report underway; supply negotiations not yet begun; process in progress
- Contact with matches identified in report not yet begun, process in progress
- Contact with matches identified in report will not occur within the next 6-months, process complete

X-RAY DIFFRACTOMETER

Item to be Scouted

_____**days**

Opportunities will be postedfor 30 days unless specified

Please describe the item application/ the end use of item.* Provide the item number if applicable: (N95 Mask vs Protective Mask).

The National Institute of Standards & Technology (NIST) seeks information on commercial vendors that are capable of providing an X-Ray Diffractometer (XRD) for the CNST NanoFab User Facility. The XRD will be used to characterize samples ranging from a few mm in size up to 150 mm (6 inch) diameter wafers. The primary application of this system is thin film analysis. Most of the samples will consist of multi-layer thin films requiring the measurement of the following properties: phase identification, grain size, interfacial layers, atomic concentration, thickness, density, roughness, and stress. Wafer mapping will be required. The instrument will be equipped with the hardware and software to utilize a variety of techniques: grazing incidence x-ray diffraction, X-ray reflectometry, in-plane diffraction, rocking curves, pole figures, and reciprocal space maps. The system will be installed in a multi-user facility where ease of use, intuitive software, fast and easy conversion from one technique/configuration to another, and ruggedness, are of paramount importance. All slits will be adjustable, motorized and computer-controlled, and no manual re-alignment will be needed when switching any optical element.

2022-129

Supplier Scouting Number (NIST MEP use)

334516

Scouting customer/product NAICS Code, if known

TECHNICAL INFORMATION:

1. Supplier Information

a. Type of supplier being sought*

☒ **Manufacturer** ☐ **Contract Manufacturer** ☐ **Distributor**

☐ **Other** _____

b. Reason for scouting submission*

☐ **2nd Supplier** ☐ **Price** ☐ **Re-shore** ☐ **Past supplier no longer available**

☐ **New Product Startup**

☐ **Other** _____

2. Summary of Technical Specifications and Performance

a. Describe the manufacturing processes (elaborate to provide as much detail as possible).*

Item to be purchased as a standalone unit

b. Provide dimensions / size / tolerances / performance specifications for the item.*

NIST has a need for a XRD that would meet the following preliminary requirements: X-Ray Source NIST will consider the following sources with, typically, copper Kα radiation: • Standard sealed tube (2-3 kW) • Rotating anode (6-9 kW) Goniometer A five-axis theta-theta vertical goniometer is preferred in order for the sample to be nearly horizontal at all times. Sample stages The sample stages must provide for XYZ movement of the sample (minimum XY -50 to +50 mm) and tilts required for in-plane measurements. Environmental Control The system should have the ability to heat and cool the sample in vacuum, air and inert gas environments. The system should have the ability to control the gas flow of various gases. The system should have the ability to control the humidity within the chamber. Incident Beam Optics A method of switching optical configuration quickly and without realignment or with automated re-alignment is

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		necessary. The incident beam optics should include Ge 220X2 and 220x4 monochromators. Diffracted Beam Optics All diffracted beam optics must have the ability to be switched quickly, easily, and without any realignment or automated re-alignment. The goniometer must be capable of automatically aligning the optics and full optical path. The diffracted beam optics should include a diffracted beam monochromator and a Ge 220x2 analyzer crystal. Detector A 2D detector capable of 0, 1 and 2D data acquisition. Slit Control The system should have the ability to precisely control the incident and receiving slits, and the ability to control the slit size as a function of angle is preferred. Cabinet and chiller A radiation enclosure with easy and open access will be provided. It will be of steel construction with lead panels, lighted interior and viewing windows. It will meet all federal and Maryland State regulations. If needed, a water-cooled chiller will be supplied. Accessories Sample holders and spacers, wafer holders, fluorescent screen The ability to add environmental controls including humidity, temperature and gas flow are preferred. Software Software packages will be supplied for instrument control, automatic alignment, data collection and analysis.
		c. List required materials needed to make the product, including materials of product components.*
		Item to be purchased as a standalone unit.
	2. Summary of Technical Specifications and Performance Requirements cont:	**d. Are there applicable certification requirements?*** ☐ **Yes** ■ **No** **Please explain**
		e. Are there applicable regulations?* ☐ **Yes** ■ **No** **Please explain**
		f. Are there any other standards, requirements, etc.?* ☐ **Yes** ■ **No** **Please explain**
		g. Additional Comments: Is there other information that would impact the item's performance or usefulness? Please explain.
BUSINESS INFORMATION:	3. Volume and Pricing	**3a. Estimated potential business volume (i.e., # Units Per Day, Month, Year) *:**
		One unit
		b. Estimated target price / unit cost information (flexible and negotiable not accepted) ***:**
		$700,000.00
	4. Delivery Requirements:	**a. When is it needed by? (Immediate, 30 Days, 6 months, etc.)***
		ASAP
		b. Describe packaging requirements (i.e., individually/group packaging)*
		Flexible
		c. Where will this item be shipped? *

		NIST, 100 bureau Drive, Gaithersburg, MD 20899
	5. Additional Comments:	**Is there other information you would like to include?**

Photos or diagrams of the item (helpful but not required).