

June 23, 2006

## **SIM SENSORS FOR DISPLACEMENT MEASUREMENTS REQUEST FOR INFORMATION**

The California Institute of Technology's (Caltech's) Jet Propulsion Laboratory (JPL), a Federally Funded Research and Development Center (FFRDC) under contract with NASA requires sensors for displacement measurements in the micrometer range with sub-nanometer resolution. JPL is seeking sensors for three types of applications for the SIM mission described below. The most challenging requirements are listed in Attachment 1. If your products are capable of meeting some or most of the requirements, JPL would like to receive information that highlights the current capabilities and indicates where the specifications are not currently met (if any). JPL is issuing this Request for Information (RFI) and the technical requirements to give your company an opportunity to explain your capabilities and experience.

The goal of this RFI is to determine your company's current capabilities to meet some or all of the challenging demands for the SIM project. Being space qualified is NOT a requirement at this time.

### **The SIM PlanetQuest mission.**

Space Interferometer Mission (SIM) PlanetQuest will search for Earth-like planets orbiting other stars. It is a key component of NASA's new Vision for Space Exploration, which includes exploring worlds outside our solar system. The mission will fly telescopes paired to form optical interferometers. These interferometers will be capable of detecting the minute wobbles of stars induced by their orbiting planets.

### **SIM Sensors**

Please review this RFI and should you determine that your company would be interested in supplying information about your sensor product lines you are requested to provide a response. In case you don't have any products that come close to achieving the required capability, we would appreciate it if you could forward this request to other companies that you believe may have the capability.

Your response should include:

1. A description of your experience in manufacturing high reliability sensors

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- Technical capabilities including in-house design, fabrication, testing, qualification/characterization, etc.
  - Experience with producing sensors for high resolution applications (yes or no and if yes what was produced)
  - In-house quality control processes and procedures used to fabricate high reliability sensors
2. A description of your sensors that could be potential candidates for any of the required sensors.
- Information regarding past applications of these candidate sensors to military, space, medical, or other high reliability industries.
  - A list of capabilities for your sensors and indications of where your products meet and do not meet the required performance. Not meeting performance is acceptable at this early phase of the project.
  - Description of the method of sensing, overall dimensions and mass of the sensor, and other pertinent information.
3. The names, phone numbers, and e-mail addresses of individual(s) who may be contacted for further information needed by JPL in support of this RFI.

### Ground Rules

1. JPL is conducting pre-solicitation information exchanges regarding its project objective and gathering alternative concepts for how this objective might be met.
2. It is JPL's objective to meet its needs using broadly based competition. One of the principal purposes of this communication with you will be to ensure that viable approaches are considered during that competition. JPL intends to utilize the information provided by Industry to design its acquisition strategy to take into account viable acquisition alternatives. It is not JPL's intent to dictate *how* JPL's needs will be met, but to state high-level requirements to which there may be multiple approaches or methods of accomplishment.
4. The information submitted in response to this RFI **DOES NOT** constitute an offer that will be accepted by JPL to form a subcontract.

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**Jet Propulsion Laboratory  
California Institute of Technology  
4800 Oak Grove Drive  
Pasadena, California 91109-8099**



Please provide your response via email to the attention of the undersigned no later than 3:00 p.m. on July 12, 2006. Additionally, a hardcopy of your response can be sent to the address listed below but this is not a requirement.

It is emphasized that this RFI is for preliminary planning purpose only and does not constitute a commitment, implied or otherwise, that will solicit you for such procurement in the future. Neither JPL nor NASA will be responsible for any costs incurred by you in furnishing this information. Prospective Subcontractors are advised that any information provided shall be deemed as proprietary and will not be shared outside of the JPL community.

If you have any questions concerning this document, please contact Steve Woo, Subcontract Manager, to request clarification on the enclosed technical requirements at:

Jet Propulsion Laboratory  
4800 Oak Grove Drive  
Pasadena, CA 91109-8099  
M/S: 201-203  
Office: (818) 354-0295  
Fax: (818) 393-3170  
Email: [steve.b.woo@jpl.nasa.gov](mailto:steve.b.woo@jpl.nasa.gov)

Your cooperation will be greatly appreciated.

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## ATTACHMENT 1

**Dated June 16, 2006**

### **Scope**

This document specifies performance requirements for space qualified micron displacement sensors with sub-nanometer resolution in support of the SIM Planetfinder mission, as a part of NASA's continuing Origin Program.

### **Key Requirements**

The performance requirements for the sensors that are expected to be procured are generally described below. Specific applications for the three types of sensors will be enveloped by the requirement ranges described below. Being space qualified is NOT a requirement at this time.

The vendor should provide the range and tolerances for each of the parameters.

Sensor parameters (requirements) will fall in the ranges specified below:

- Displacement ranges between 1.5 to 15 microns
- Measurement accuracy (after linearization) of 0.5 nm
- Resolution 0.075 nm to 0.2 nm
- Bandwidth <10 Hz or up to 1 kHz

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