

JUSTIFICATION FOR SOLE SOURCE (Simplified Acquisitions <\$150K)

The service or material listed on N0016116RC16709 is sole source and competition is precluded for reasons indicated below. There are no substitutes available for this material or service.

**Restricted to the following source.** Provide Quantum Design, Inc. name. (If a sole source manufacturer distributes via dealers, ALSO provide dealer information.)

Manufacturer: **Quantum Design, Inc.**

Manufacturer POC & phone nr.: **aashish@qdusa.com**

Mfr. Address: **6325 Lusk Blvd, San Diego, CA 92121-3733**

Dealer / Rep: **Same as above**

Dealer / Rep address / phone nr.: **Same as above**

X Description of the item or service required, the estimated cost, and required delivery date.

Model P650C Heat Capacity Measurement System to enable specific heat (heat capacity) measurements using the USNA Physical Properties Measurement System.

The USNA physics department currently owns a Physical Properties Measurement System (PPMS) from Quantum Design, Inc. The currently owned system contains a magnet capable of producing large magnetic fields as well as cryogenic cooling system that will cool to very low temperatures. A large number of insert options are available that can be inserted into this larger system. Each option will measure some particular property of sample materials, over the temperature and magnetic field ranges provided by the PPMS system.

This purchase is for an option to allow for the measurement of the specific heat (heat capacity) of single crystal and powder samples as a function of temperature (from 1.9 K to 400 K) and applied magnetic field.

The expected cost is \$ \_\_\_\_\_ and delivery would be expected sometime in the Fall of 2016.

X Specific characteristics of the material or service that limit the availability to a sole source (unique features, function of the item, etc.). Describe in detail why only this suggested source can furnish the requirements to the exclusion of other sources.

The USNA physics department already has a Physical Properties Measurement System (PPMS) manufactured by this company in the solid state physicals lab. This is a major piece of equipment, which has already been upgraded. The most recent upgrade, with contract number \_\_\_\_\_ and award date \_\_\_\_\_ spent \$ \_\_\_\_\_ to upgrade the system with an "EverCool 2" closed-cycle cooling compressor that eliminated the need to add liquid helium as a coolant. The most recently purchased option, with contract number \_\_\_\_\_ and award date \_\_\_\_\_ spent \$ \_\_\_\_\_ to purchase two options for magnetization and magnetic susceptibility measurements. This is a major piece of equipment,

and purchasing options to this equipment expands its capabilities without spending money on replicating the cooling system and magnet. Further, purchases from the same manufacturer allow for reuse of various computer and electronic components. The current quote for the heat capacity option is lowered due to the fact that we already have a Model 1000 computer system, which came as part of the magnetometry options. Options from the same manufacturer (Quantum Design, Inc.) are manufactured to be seamlessly compatible with the currently existing equipment, in both hardware and software. There are no other manufacturers that produce measurement options designed to be compatible with the Quantum Design, Inc. PPMS.

\_\_\_\_\_ The requested material or service represents the minimum requirements of the government.

CHECK & FILL IN ALL APPLICABLE BLANKS BELOW

X The material/service must be compatible in all aspects (form, fit and function) with existing systems presently installed/performing. Describe the equipment/function you have now and how the new item/service must coordinate, connect, or interface with the existing system.

The heat capacity options must be compatible – both in hardware and software – with the current PPMS manufactured by Quantum Design, Inc. The option must be installed on the current PPMS, and switching between this heat capacity option and other measurement options must be fast and not require software changes.

\_\_\_\_\_ A patent, copyright or proprietary data limits competition. The proprietary data is \_\_\_\_\_

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\_\_\_\_\_ These are "direct replacements" parts/components for existing equipment.

\_\_\_\_\_ Other information to support a sole source buy:

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