Request for Proposal

Astronomical Grism(s)

January 13, 2010

A VASCUPP Member Institution
Issued by
Procurement Services
Charlottesville, Virginia
A. GENERAL INFORMATION

Request for Proposal (RFP) Name: Astronomical Grism(s)

RFP Number: #FF011310

Issue Date: January 13, 2010

Brief Description: Specialized grating prism(s) [or “grism(s)”] for collaborative Astronomy experimentation

Preproposal Questions: Any questions concerning this RFP must be sent to the buyer listed below no later than 3:00 p.m. (EST) on Thursday, January 21, 2010 in order to guarantee a timely response prior to the proposal due date.

Proposal Due Date: 3:00 p.m. (EST) on Thursday, January 28, 2009
Firms will send one original copy their proposal(s) to the address listed in the contact information box below. Additionally, firms will also send a complete electronic version of their proposal(s), formatted in Microsoft Word, to the email address listed in the contact information box below. The University of Virginia (the “University”) reserves the right to reject proposals received after the stated due date and time.

Negotiations: Negotiations, if needed, will be held (via e-mail) starting the week of February 15, 2010.

Expected Award Date: February 26, 2010

REFER ALL QUESTIONS TO THE ISSUING OFFICE:

UNIVERSITY OF VIRGINIA
Department of Procurement Services
1001 North Emmet St, Carruthers Hall
P.O. Box 400202
Charlottesville, VA 22904-4202
Attention: Frank F. Fountain
Phone: 434-982-3092
Email: fff3x@virginia.edu

NOTE 1: If RFP proposal is sent U.S. Postal Service, use the P. O. Box. The University does not take responsibility for lost or misdirected mail.
NOTE 2: During the RFP process, all communication must be directed to the buyer listed above, with the exception of issues directly related to SWAM business and SWAM subcontracting opportunities. Such SWAM issues may be alternately directed to Bill Cooper, the University’s Director of Supplier Diversity, at (434) 924-7174 or SWAM@virginia.edu. Any failure to adhere to this requirement may result in the rejection of the firm’s proposal or cancellation of the RFP.

This Request for Proposal (RFP) has been posted on Procurement Services web site for your convenience. Addenda and attachments are posted if issued. The RFP can be downloaded at this web site: http://www.procurement.virginia.edu/pagerfp. It is the firm’s responsibility to ensure that the latest version of the entire RFP and related links are reviewed prior to submission of a proposal. We encourage you to check the web site frequently for any changes prior to the due date. Call (434) 924-1346 if you have
trouble accessing the RFP from the web. For questions about the content of the RFP, contact the buyer listed above. Additional information can be found on Procurement Services web site: http://www.procurement.virginia.edu.

For ease of reference, each firm or individual receiving this RFP is referred to as a “firm” and the firm or individual selected to provide services for the University is referred to as the “Selected Firm.” This RFP states the instructions for submitting proposals and the procedure and criteria by which a firm may be selected.

**B. SCOPE OF GOODS & SERVICES**

It is the University's intent to enter into an Agreement with (and/or issue a Purchase Order to) the Selected Firm(s) for the procurement of grism(s) which will include those Goods and Services necessary to help the University achieve its goals as outlined in this RFP (the “Goods and Services”).

1. The University and its Department of Astronomy are collaborating with the University of Arizona, University of Minnesota and the University of Notre Dame to create an infrared camera that will image the combined focus of the Large Binocular Telescope (“LBT”) in Mount Graham, Arizona in near and mid-infrared light.

   This camera will include two different direct-ruled KRS-5 grisms to disperse the light at moderate resolution. Both grisms will operate at approximately 70 K within a cryogenic Dewar. Firms are encouraged to provide a proposal to fabricate both grisms. Additionally, firms are encouraged to provide options to purchase either a quantity of one of each grism or a quantity of two of each grism. Firms will indicate in their proposal if there are any specifications that dramatically affects the cost.

   Both grisms will conform to the same mechanical size and have the same ruled area, clear aperture, prism and facet angles and mechanical details in accordance with the attached drawings found in Attachment 3, Configured Drawings.

2. Highly preferred capabilities/specifications:
   a. **Ruling Densities and Performance Predictions**
      Ruling densities for each grism as follows. Ruling density is defined in the plane of the ruledface:
      - **Grism 1**: Groove Density = 40.69 grooves/ millimeter (mm). Grism 1 is used in first order spanning 2 – 5.1 micron with peak efficiency at approximately 3.56 micron.
      - **Grism 2**: Groove Density = 32.55 grooves/mm. Grism 2 is used in first order spanning 2 – 5.1 micron with peak efficiency at approximately 4.58 micron and in 2\textsuperscript{nd} order spanning 2 – 3.5 micron with peak efficiency at approx. 2.31 micron.

      If possible firms should include with their proposal the predicted diffraction efficiency versus wavelength for Grism 1 (order 1) and Grism 2 (order 1 and 2) across the wavelength spans above. In addition, firms should also provide past data that compares as-built efficiency of similar grisms fabricated by the firm with efficiency predictions.

   b. **Prism and Facet Angles**
      All grisms will have prism angle = facet angle = 6.10 deg per the attached drawing found in Attachment 3, Configured Drawings.
c. **Tolerances**
   Firm should include in their proposals information relating to whether the following tolerances are typical and the feasibility of meeting them.
   - *Ruling Density*: Efficiency v. wavelength is only weakly affected by a ±0.1 grooves/mm ruling density tolerance.
   - *Prism Angle*: Similarly, efficiency v. wavelength is only weakly affected by a ±0.25 degree prism angle tolerance.
   - *Facet Angle*: A ±0.25 degree facet angle tolerance has the most effect on efficiency versus wavelength. Please use best effort to minimize this tolerance.

d. **Size**
   The University anticipates mounting the grisms on a filter wheel near a pupil. The wheel is designed to accommodate 25.4 mm diameter filters so a grism sized at 15 mm on a side allows ample room for mounting within a special fixture. The minimum size of the diffractive surface on the exit face is set by the pupil size of 10.6 mm width at the grism exit face plus some margin.

e. **Surface Figure, Roughness and Quality**
   Highly preferred optical performance across the entrance and exit face clear apertures prior to ruling:
   - *Surface Figure*: Lambda/10 Peak-to-Valley (“PV”) at 0.6328 nm. A fairly precise surface figure is necessary because the LBT is an optical interferometer corrected with adaptive optics. The University’s hope is to induce as few phase errors through the grism as possible.
   - *Surface Irregularity* (spatial scales > 1 mm): 29 nm Root-Mean-Square (“RMS”)
   - *Surface Roughness* (spatial scale < 100 micron): 15 nm RMS
   - *Surface Quality*: 60/40 Scratch/Dig per military specification (“MIL-SPEC”) requirements in MIL-PRF-13830B [Link to MIL-SPEC search: https://assist.daps.dla.mil/quicksearch/].

f. **Ruled Area Surface Roughness**
   Best effort to minimize surface roughness on rulings. Firms should provide information in their proposals regarding the ruling surface roughness typically achieved.

g. **Anti-Reflection (“AR”) Coating on Entrance Faces**
   The entrance faces of all grisms should be coated with an AR coating with surface transmission greater than or equal to 98% across the wavelength range 2 -- 5.1 micron. The grisms will be used in a cryogenic vacuum dewar cooled to approximately 70 Kelvin (K). Grisms will be cycled between room temperature and 70 K multiple times and the coating must effectively survive these cycles. While specific cryogenic testing of the grism is not necessary, the firm should indicate whether the proposed coatings have been successfully cycled between these temperatures, either by the firm or other customers. AR Coatings will conform to MIL-SPEC durability requirements MIL-C-48497 section 3.4.1 and 3.4.2 and sub-sections therein. Measured (room temperature) reflectance of a witness sample coated at the same time as the grisms will be provided.

h. **Testing**
   The University highly prefers diffraction efficiency testing be performed on the finished parts across the wavelength ranges and orders of use delineated above. Firms should include a testing methodology in their proposals. Any additional costs associated with testing should be listed separately in the firm’s proposal.
3. Installation
   Installation will be the responsibility of the University.

4. Delivery
   Delivery to Charlottesville, Virginia will be the responsibility of the Selected Firm, and all costs
   associated with delivery should be included in the firm’s pricing. The delivery timeframe is of
   particular importance to the University. Firms should detail in their proposal the anticipated
   delivery timeframe to the University after the receipt of order (“ARO”).

5. Warranty
   The University highly prefers a minimum of a one-year warranty from the point of Product
   Acceptance.

C. BASIS OF SELECTION

Proposals will be evaluated based upon the overall merits/value of the proposal including, but not limited
   to, price. The University will evaluate proposals, and if a firm is to be selected, select the firm on the
   basis of:

1. The firm's plan to provide the University with the products as described in the Scope of Good and
   Services section;

2. The firm’s experience in providing Goods and Services similar to those described in this RFP, to
   include the firm’s references from clients;

3. The firm’s price proposal; and

4. The firm’s Small, Woman-owned and Minority-owned (SWAM) businesses status and/or the
   firm's plan for utilization of SWAM businesses. For more information about SWAM and the
   University’s SWAM plan, please see the letter at Attachment 1 and refer to the following site:

Note 1: A 10% minimum weight will be given to this criterion in evaluating proposals.

Note 2: Any questions related to SWAM business and SWAM subcontracting opportunities can
   be directed to Bill Cooper, the University’s Director of Supplier Diversity, at (434) 924-7174 or
   SWAM@virginia.edu.

D. CONTENTS OF PROPOSAL

Proposals will be prepared simply and economically, providing a straightforward, concise description of
   capabilities to satisfy the requirements of the RFP. Emphasis will be on completeness and clarity of
   content, and will be organized in the order in which the requirements are presented in the RFP.

Unnecessarily elaborate brochures and other presentations beyond that sufficient to present a complete
   and effective proposal are not desired and may be construed as an indication of the firms’ lack of cost
   consciousness. Elaborate artwork, expensive paper and bindings, and expensive visual and other
   presentation aids are neither necessary nor desired.
Firms will provide the following information:

1. A brief history of the firm and its experience, qualifications and success in providing the type of product requested.
2. A detailed description and the full specifications of the Goods and Services proposed. Each firm will indicate in their proposal the firm’s ability to achieve / comply with each specification. In the event that the firm wishes to propose an alternate specification that, in any way, differs from the above specifications, the firm will detail their proposed change(s) and how the proposed change would compare to the listed specification. Proposals will be formatted in such a way to address each of the above specifications in a line-by-line process.
3. The estimated ship date of the product from the time of the order (i.e., ten weeks ARO).
4. Information on the warranty associated with the product the firm is proposing and any extended warranty (include the price) that might be available.
5. The firm’s proposed price / fee for providing the Goods and Services, to include shipping charges (the University’s shipping terms are FOB destination).
6. At least three references where similar goods and/or services have been provided. Include the name of the firm / organization, the complete mailing address, and the name of the contact person and their telephone number.
7. The firm’s Small, Woman-owned and Minority-owned (SWAM) businesses status and/or how the firm intends to utilize SWAM firms in regards to this particular procurement.
8. Provide a list of institutions of higher education with which the firm has signed a term contract.
9. Provide the amount of annual sales the firm has with each VASCUPP Member Institution. A list of the VASCUPP Members can be found at http://www.vcu.edu/procurement/coopcon.htm
10. Complete and return the information requested in Attachment 2, Firm Information.

NOTE: Virginia Freedom of Information Act
Except as provided below, once an award is announced, all proposals submitted in response to this RFP will be open to the inspection of any citizen, or any interested person, firm or corporation, in accordance with the Virginia Freedom of Information Act. Trade secrets or proprietary information submitted by a firm as part of its proposal will not be subject to public disclosure under the Virginia Freedom of Information Act; however, the firm must invoke the protections of this section prior to or upon submission of its proposal, and must identify the specific data or other materials to be protected and state the reasons why protection is necessary. A firm may not request that its entire proposal be treated as a trade secret or proprietary information. Nor may a firm request that its pricing be treated as a trade secret or proprietary information, or otherwise be deemed confidential.

E. TERMS AND CONDITIONS

This solicitation and any subsequent award are subject to:

- The Selected Firm registering as a vendor with the University of Virginia. https://www.procurement.virginia.edu/pagevendorregistrationform
- Unless otherwise deemed appropriate by the University, the Selected Firm(s) will enroll in one of the University approved methods for receipt of electronic payments. Accordingly, the Selected Firm agrees to accept Bank of America’s (“BoA”) ePayables® method of electronic payment or BoA’s PayMode® method of electronic payment.
• The Selected Firm registering and accepting eVA Terms and Conditions prior to award.  
  http://www.eva.virginia.gov/

• The University’s Mandatory Contractual Provisions:  

• The University’s Preferred Contractual Provisions:  

**Note:** Unless a firm *expressly and specifically states its exception* to any of the Preferred Provisions in its written proposal and includes proposed alternate language for that Provision, then the proposal from the firm will automatically be deemed to include those Provisions.

• The University's Procedure for Resolution of Contractual Claims  

**F. OTHER INFORMATION**

To the existing Provision J. Use of Agreement by Third Parties, add the following:

The Selected Firm agrees in advance to extend any Agreement resulting from this RFP to the University of Arizona, the University of Minnesota, the University of Notre Dame and any other entities that have been granted access to the LBT facility in Mount Graham, Arizona during the term of the resulting Agreement.

Additional Preferred Contractual Provisions:

A. Insurance  
Listed below is the insurance the Selected Firm must maintain under any Agreement resulting from this RFP. In no event should the Selected Firm construe these minimum required limits to be their limit of liability to the University. The Selected Firm will maintain insurance which meets or exceeds the requirements of the University with insurance companies that hold at least an A- financial rating with A.M. Best Company. No Agreement will be executed by the University until the Selected Firm satisfies the insurance requirements of the University. The Selected Firm may be required to provide the University with a valid Certificate of Insurance before providing any goods or services to the University. The University reserves the right to approve any insurance proposed by the Selected Firm.

**Comprehensive Commercial General Liability:**  
The Selected Firm and any Subcontractor will provide a minimum combined single Limit of Liability for bodily injury and property damage of $1,000,000 per occurrence with coverage for the following coverage:

- [X] Premises/Operations
- [X] Products/Completed Operations
- [X] Contractual

B. Term of Agreement  
The term of this Agreement will be for five years with no renewal options.
C. Future Goods and Services
The University reserves the right to have the Selected Firm provide additional goods and/or services under the same pricing, terms, and conditions to make modifications or enhancements. Such additional Goods and Services may include other products, components, accessories, subsystems or related services that are newly introduced during the term of this Agreement. Such newly introduced additional Goods and Services will be provided to the University at favored nations pricing, terms, and conditions.

D. Product Acceptance
“Product Acceptance” will encompass testing and observation of the fully functional and operational product. The University’s Contract Administrator will determine if the product specifications have been met, shortly after installation and integration of the product. Warranty will begin as of the date of Product Acceptance. In the event that the University does not accept the product, the University may elect to require the Selected Firm to provide a replacement product or terminate the Agreement.

The University’s Contract Administrator will be the sole representative of the University and will have sole authority to act on the University’s behalf with regard to Product Acceptance; however, that in the event of a dispute regarding any material aspect of Product Acceptance unable to be resolved by the University’s Contract Administrator, then the procedures in Attachment 3, Procedure for Resolution of Contractual Claims will be followed.

E. Payment Method
Unless otherwise deemed appropriate by the University, the Selected Firm will enroll in one of the University approved vehicles for receipt of electronic payment.

F. Confidentiality
All firms responding to this RFP represent and confirm that the contents of the firm’s proposal(s) and any resulting Agreement are not confidential and will be open to the inspection of any interested person, firm or corporation, in accordance with the Virginia Freedom of Information Act.
Greetings:

The quality of service the University of Virginia is able to deliver to its customers is directly related to the excellent support we receive from you and many other outstanding suppliers of goods and services. Without you, we would not be able to fulfill our educational, health care and research missions. An important part of our procurement program involves our commitment to doing business with small, women-and minority-owned (SWAM) businesses. As one of our most important vendors, we look to you to help us achieve this objective.

We conduct substantial business with small firms. We have been less effective in securing long-term business relationships with minority-and women-owned businesses. We are determined to improve our record.

I seek your assistance in two areas. First, to the extent practical, I ask that you involve small, women-and minority-owned businesses in the delivery of services you provide to UVa. Second, I seek your help in reporting your results through our quarterly subcontracting reports. The terms and conditions previously provided to your organization outlined this process.

This effort is important to us. We depend on you in so many ways – this is another way that we can partner with your company to make things better.

Sincerely,

Leonard W. Sandridge
Executive Vice President and Chief Operating Officer

LWS:dr

Madison Hall · Post Office Box 400228 · Charlottesville, Virginia 22904-4228
**Attachment 2**  
**Firm Information**

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<thead>
<tr>
<th><strong>Full Legal Name</strong> (Company name as it appears with your Federal Taxpayer Number):</th>
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</thead>
<tbody>
<tr>
<td>Address:</td>
</tr>
<tr>
<td>Telephone Number:</td>
</tr>
<tr>
<td>Web Address:</td>
</tr>
<tr>
<td>Email Address:</td>
</tr>
<tr>
<td>DUNS Number:</td>
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</tbody>
</table>

**SWAM Information:**

Is your firm certified with the Commonwealth of Virginia’s Department of Minority Business Enterprises (DMBE):  

- Yes  
- No

<table>
<thead>
<tr>
<th>Minority-Owned Business:</th>
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</table>
| Yes  
| No  

<table>
<thead>
<tr>
<th>Women-Owned Business:</th>
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</table>
| Yes  
| No  

| Small-Owned Business:  
|-----------------------|  
| Yes  
| No

Is your firm registered as a vendor in the Commonwealth of Virginia’s e-procurement system (eVA):  

- Yes  
- No

**Point of Contact for this Proposal:**

| Name:  
| Address:  
| Office No.  
| Mobile No.  
| FAX No.  
| Email Address:  

Attachment 3

Configured Drawings

1. Bevel all edges 0.5 mm face width.
2. Entrance and Exit Face (prior to ruling):
   a. Surface Figure — Flat to 1/10 wave PV across clear aperture at 0.6328 mm.
   b. Surface Irregularity (Spatial scales > 1 mm) — 29 nm RMS within clear aperture.
   c. Surface Roughness (Spatial scales < 100 micron) — 15 nm RMS within clear aperture.
   d. Surface Quality — 60/60 scratch dig per MIL-O-13200A within clear aperture
3. Best effort to reduce surface roughness of finished ruled area.
4. All other surfaces fine ground.
5. Substrate material KRS-5.
6. Cool Entrance Face Clear Aperture w/Broadband AR Coating 2 — 5.5 micron.
7. Coating durability per MIL-C-48497 section 3.4.1 & 3.4.2.
8. Rule Exit Face with facet angle = prism angle, i.e., ruled facets are parallel with entrance face (see sheet 2).
9. Ruling Density is defined as 1/d where d is the facet width in the plane of the ruled face.
10. Ruling Density:
    a. Grism 1 — 40.7 +/− 0.1 grooves/mm
    b. Grism 2 — 32.6 +/− 0.1 grooves/mm.
6.10°±2.5° Prism Angle

6.10°±2.5° Facet Angle (Typ)