**Internal Pre-Proposal Review Criteria**

**Overall Score:** Overall, on a scale of 1 (least) to 10 (most), how competitive does the final proposal for this applicant have the likelihood to be at NSF, based on the content in this pre-proposal, considering all pre-proposals reviewed, the abbreviated format of the pre-proposal, and NSF solicitation/criteria.

*Rating Choices (circle one*): *<- least* (1 2 3 4 5 6 7 8 9 10) *most ->*

*Please Provide Constructive Comments or Suggestions for Improvement:*

**Research Infrastructure Improvement**

How convincingly does the pre-proposal demonstrate that the project will make a substantial improvement in the organization's capabilities to conduct leading-edge research that will advance knowledge and explore creative, original, or potentially transformative concepts?

*Rating Choices (circle one):* (1: poor; 2: fair; 3: good; 4: very good; 5: excellent)

*Please Provide Constructive Comments or Suggestions for Improvement:*

**Undergraduate Research**

How convincingly does the pre-proposal demonstrate that the project will make a substantial improvement in the organization's capabilities to provide research experiences for undergraduate students using leading-edge capabilities?

*Rating Choices (circle one):* (1: poor; 2: fair; 3: good; 4: very good; 5: excellent)

*Please Provide Constructive Comments or Suggestions for Improvement:*

**Broadening Participation**

How convincingly does the pre-proposal demonstrate that the project will broaden the participation in science and engineering research (especially as lead PIs) by women, underrepresented minorities, persons with disabilities and/or early-career investigators?

*Rating Choices (circle one):* (1: poor; 2: fair; 3: good; 4: very good; 5: excellent)

*Please Provide Constructive Comments or Suggestions for Improvement:*

**Additional Broader Impacts**Based on the information provided in the abbreviated pre-proposal, how convincingly does the PI demonstrate that the envisioned project has the potential to benefit society and/or contribute to the achievement of specific, desired societal outcomes BESIDES broadening participation?

Such incomes include, but are not limited to: “improved STEM education and educator development at any level; increased public scientific literacy and public

engagement with science and technology; improved well-being of individuals in society; development of a diverse, globally competitive STEM workforce; increased partnerships between academia, industry, and others; improved national security; increased economic competitiveness of the United States; and enhanced infrastructure for research and education.”

*Rating Choices (circle one):* (1: poor; 2: fair; 3: good; 4: very good; 5: excellent)

*Please Provide Constructive Comments, to include very briefly listing the broader impacts you saw presented, and their relative demonstrated strengths and weaknesses:*

**Adequacy of Resources**Given the constraints of the abbreviated internal pre-proposal, how convincingly does the pre-proposal demonstrate that there will be adequate resources (either through UM or any collaborating organizations) to carry out the proposed activities? Is it clear that the proposed space will be ready, available, and sufficient to house the instrument at project start? If renovations are required, is there an established plan to make (and pay for) those renovations prior to the instrument becoming available? Are appropriately experienced maintenance and support personnel available and prepared (or will they be by the time the instrument becomes available)?

*Rating Choices (circle one):* (1: poor; 2: fair; 3: good; 4: very good; 5: excellent)

*Please Provide Constructive Comments or Suggestions for Improvement:*

**Qualifications of Proposer/Team**  
How qualified is PI/team to conduct the proposed activities?

*Rating Choices (circle one):* (1: poor; 2: fair; 3: good; 4: very good; 5: excellent)

*Please Provide Constructive Comments or Suggestions for Improvement:*

**Additional Review Criterion for Acquisition Proposals Only**

**Level of Sharing**

How convincingly does the pre-proposal demonstrate that the instrument will be extensively shared/used by multiple users for research and/or research training?

*Rating Choices (circle one):* (0: N/A; 1: poor; 2: fair; 3: good; 4: very good; 5: excellent)

*Please Provide Constructive Comments or Suggestions for Improvement:*

**Management Plan**

How convincingly does the pre-proposal demonstrate sufficient commitment and technical expertise for effective scheduling and usage of the instrument? For larger (more expensive) instruments with substantial sharing, will (part of) a permanent technician be dedicated to the effort? Does the pre-proposal state (as it should) whether or not the instrument will use helium? If it will use helium does the pre-proposal state (as it should) plans to conserve and/or recover and reuse helium?

*Rating Choices (circle one):* (0: N/A; 1: poor; 2: fair; 3: good; 4: very good; 5: excellent)

*Please Provide Constructive Comments or Suggestions for Improvement:*

**Long Term Commitment**

Is there a demonstrated commitment from the units whose researchers will benefit the most from this instrument to providing whatever resources are needed to keep the instrument operational and available for its entire expected life span?

*Rating Choices (circle one):* (0: N/A; 1: poor; 2: fair; 3: good; 4: very good; 5: excellent)

*Please Provide Constructive Comments or Suggestions for Improvement:*

**Research Appeal**

Is the research to be enabled is compelling enough to justify the instrument request?

*Rating Choices (circle one):* (0: N/A; 1: poor; 2: fair; 3: good; 4: very good; 5: excellent)

*Please Provide Constructive Comments or Suggestions for Improvement:*

**Budget**

Is the budget well-developed, appropriate, and justified?

*Rating Choices (circle one):* (0: N/A; 1: poor; 2: fair; 3: good; 4: very good; 5: excellent)

*Please Provide Constructive Comments or Suggestions for Improvement:*

**Student Operators**

If student involvement is in the form of direct support for operations and maintenance of the instrument, how justifiable is their involvement in terms of both instrument needs and the training of the next generation of instrumentalists?

*Rating Choices (circle one):* (0: N/A; 1: poor; 2: fair; 3: good; 4: very good; 5: excellent)

*Please Provide Constructive Comments or Suggestions for Improvement:*

**National Impact**

For instrument acquisition proposals approaching or exceeding $1.4 million (Track 2), what is potential impact of the instrument on the research community of interest at the regional or national level?

*Rating Choices (circle one):* (0: N/A; 1: poor; 2: fair; 3: good; 4: very good; 5: excellent)

*Please Provide Constructive Comments or Suggestions for Improvement:*

**Additional Review Criterion for Development Proposals Only**

**Appropriateness for Development**

How appropriate is this for submission as a development proposal (as opposed to an acquisition proposal)? Will the proposed instrument enable enhanced performance over existing instruments, or new types of measurement or information gathering? Is there a strong need for the new instrument in the larger user community to advance new frontiers of research?

*Rating Choices (circle one):* (0: N/A; 1: poor; 2: fair; 3: good; 4: very good; 5: excellent)

*Please Provide Constructive Comments or Suggestions for Improvement:*

**Management Plan**

How adequate is the project’s management plan? Does the plan have a realistic schedule that is described in sufficient detail to be assessed? Are mechanisms described to mitigate and deal with potential risks?

*Rating Choices (circle one):* (0: N/A; 1: poor; 2: fair; 3: good; 4: very good; 5: excellent)

*Please Provide Constructive Comments or Suggestions for Improvement:*

**Technical Expertise**

What is the demonstrated availability of appropriate technical expertise to design and construct the instrument? If direct support for student involvement in development efforts is requested, how well justified is that involvement in terms of both project needs and training the next generation of instrumentalists?

*Rating Choices (circle one):* (0: N/A; 1: poor; 2: fair; 3: good; 4: very good; 5: excellent)

*Please Provide Constructive Comments or Suggestions for Improvement:*

**Cost Appropriateness**

How appropriate does the cost seem for the new technology?

*Rating Choices (circle one):* (0: N/A; 1: poor; 2: fair; 3: good; 4: very good; 5: excellent)

*Please Provide Constructive Comments or Suggestions for Improvement:*