***Instructions:*** *Delete all instructions and guidelines in blue type prior to submitting your proposal. All proposals are limited to 11 pages (1-page Cover Page, 1-page abstract, 5-page proposal, 2-page Alignment and ROI and 2-page Resource Requirements table), plus references. All sections must be completed for a proposal to be considered. You must use 1-inch margins and 12-point standard font (Times or Arial). Email completed proposal in* ***MS Word* AND *PDF formats*** *by 5:00 p.m.* ***(Pacific) on October 14, 2022 to: ARC-IRAD@mail.nasa.gov*** *– you will receive an email confirmation of receipt. Please adhere to the following file naming scheme when submitting your IRAD proposal: IRAD23\_PI Last Name\_ShortProposalName.* ***Proposals that exceed the page limit or do not follow the prescribed format will be redacted to fit within the instructions.***

**FY23 ARC INTERNAL RESEARCH & DEVELOPMENT (IRAD) PROPOSAL**

**SECTION A: COVER PAGE** *(1-page limit)*

**Proposal Title:**

**Principal Investigator/Lead:** *(The PI/lead must be an Ames civil servant)*

**PI Organization Code:** *(e.g., Code S, Science Directorate)*

**This proposal is for:** *(Select one)*

**\_\_\_Technology Development**

**\_\_\_Scientific Research**

**Total FY23 Full Time Equivalent (FTE) Request: \_\_\_FTE**

**Total FY23 Procurement:**

**Work Year Equivalent (WYE) Request: $**

**Other Procurement Request (excluding WYE): $**

**Is this a multi-year effort?\*** *Awards for FY23 will be given based on the work described for Year 1 (not future years).*

\_\_Yes \_\_ No

*\*Receiving funding for FY23 does* ***not*** *guarantee funding for future fiscal years. Future funding depends on a progress review and funding availability.*

**Total FY23 Partner Contributions: $**

**Management Approval (PI/Lead’s direct line management - branch chief or higher:** Name: *Jane Doe* Ames Org: *S* Description: *e.g. PI’s Branch Chief*

**Paste email message from management confirming concurrence on this proposal.**

*If this section (i.e. management approval’s email) causes you to go over the 1-page limit for Section A, you may include it on another page.* ***Do not*** *include any additional information.*

**SECTION B: IRAD PROPOSAL ABSRACT** *(1-page limit)*

**PROPOSAL TITLE:**

**PRINCIPAL INVESTIGATOR/LEAD:** *Name, Email Address and Phone Number. \*P.I. must be an Ames civil servant.*

**PI ORGANIZATION CODE:** *(e.g. Code T, Exploration Technology Directorate)*

**ASTRACT:** *Limit 200 words*

**SECTION C: IRAD PROPOSAL** *(5-page limit)*

**I. PROPOSAL GOALS, TECHNICAL APPROACH, AND INNOVATION**

*This section must include the information requested. It is incumbent on the proposer to include all necessary information requested.*

**Proposal Goal(s):** *Indicate the goal being addressed, the hypothesis being tested, or the problem to be solved. Provide a brief statement about the capability need and/or knowledge gap that is being addressed by this proposed work.*

**Background/State-of-the-Art:** *Briefly describe the current state-of-the-art or knowledge in this area. Describe how this effort is different or complementary of other efforts in academia, government or industry. Focus on the specific sub-field(s) relevant to the proposed work. Where appropriate, cite published literature – include references/citations in Section F.*

**Objectives:** *Identify one or more key objectives to meet the stated goal(s).*

**Proposed Research/Technical Approach:** *Provide a brief overview of the technical approach/research plan to address each objective. This should clearly describe the proposed technical approach/research design, data collection and analysis. Discuss preliminary results to justify your approach.*

**Success Criteria:** *State expected results and interpretation of negative results.*

**Research Product/Deliverables:** *All proposals must include a clear work plan that lists explicit milestone(s) and/or deliverable(s) for this year. This could include expected hardware or software developments, experiments/analytical tests, modeling results, anticipated workshops, papers, etc. that will be accomplished for this year. Link the stated deliverables to specific objectives, its associated approach, and budget items, where possible, and state which partner is responsible for each deliverable.*

**Technology Readiness Level (TRL):** *IF YOU ARE PROPOSING A TECHNOLOGY DEMONSTRATION OR DEVELOPMENT, what is the maturity level of your solution approach? For definition of TRL, refer to: http://www.nasa.gov/sites/default/files/trl.png*

**TRL (Proposal start): TRL (Proposal start plus 12 months):**

If not proposing a technology demonstration or development project, delete this section.

**Science Readiness Level:** IF YOU ARE PROPOSING A SCIENCE OR RESEARCH PROJECT, state the stage of the investigation in your lab (proposed, no work done, preliminary data, hardware, etc.). OPTIONAL: if one of these scales applies to your research, state the Application Readiness Level (ARL) or Countermeasure Readiness Level (CRL). Refer to: [www.nasa.gov/ames/ocs/srl](http://www.nasa.gov/ames/ocs/srl). If not proposing a science or research project, delete this section.

**SECTION D: IRAD ALIGNMENT AND RETURN ON INVESTMENT** *(2-page limit)*

**I. ALIGNMENT**

**Center Core Competencies Alignment:** *Why should Ames invest in this work? How does the planned work contribute to Ames’ Core Competencies? Refer to:* [*https://www.nasa.gov/centers/ames/about/overvew.html*](https://www.nasa.gov/centers/ames/about/overvew.html)

*The IRAD proposals are open to any technical area relevant to NASA Ames Research Center*

Please indicate which one of the Ames Core Competencies your proposal addresses.

\_\_ Air Traffic Management

\_\_ Entry Systems

\_\_ Advanced Computing & IT

\_\_ Intelligent/Adaptive Systems

\_\_ Cost-Effective Space Missions

\_\_ Aerosciences

\_\_ Astrobiology & Life Sciences

\_\_ Space & Earth Sciences

\_\_ Crosscutting, please specify

**Agency Capabilities Alignment:** *Why should NASA invest in this work? How does the planned work align with the Agency’s capability in Strategic Goals? See the 2022 NASA Strategic Plan.* [*https://www.nasa.gov/sites/default/files/atoms/files/fy\_22\_strategic\_plan.pdf*](https://www.nasa.gov/sites/default/files/atoms/files/fy_22_strategic_plan.pdf)

*Additionally, if applicable, explicitly state with which NASA Roadmap Technical Area (TA) the proposed work is most closely aligned (i.e., provide a numerical Roadmap TA, down to level 3, if possible). Refer to:* [*http://www.nasa.gov/offices/oct/home/roadmaps/index.html*](http://www.nasa.gov/offices/oct/home/roadmaps/index.html)

**II. RETURN ON INVESTMET (ROI)**

**ROI Narrative:**

*Describe the ROI for the Center. This may be monetary and/or enhanced ability to compete for work, etc.*

*If funds are to be used for outside support or collaboration, describe the ROI for the Center.*

**Next Steps:**

*Provide an overview of the next steps and future funding prospects and opportunities after this year's work. This could include anticipated proposals to next year’s IRAD (if continuous), other NASA or non-NASA programs, experimental/flight testing, submission of technical papers, patents, or other follow-on work.*

*Describe all options that are being considered. Include the timeline (e.g. submit proposal to ROSES call in FY25) and what Ames’ role will be in the effort (e.g. lead instrument design and development).*

*If muti-year project: please outline top goals for Year 2 and Year 3. \*Receiving funding for FY23 does* ***not*** *guarantee funding for future fiscal years. Future funding depends on a progress review and funding availability.*

**Risks:**

*What further development is needed before this work can result in the ROI? What external risks have you identified, if any?*

**SECTION E: BUDGET** *(3-page limit)*

**I. RESOURCE REQUIREMENTS TABLE – FY23**

*Note, no travel funds are permitted under this IRAD. Budget may not exceed $200K and can be split between FTE and Procurement, including contract labor. A minimum of 70% of the budget must be allocated for work conducted at or procurement for Ames.*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Civil Servant Labor (FTE) | | | | |
| Role | Name | | Code | FTE |
|  |  | |  |  |
|  |  | |  |  |
|  |  | |  |  |
| Contract Labor ($) | | | | |
| Role | Name | | Contract | Dollars |
|  |  | |  |  |
|  |  | |  |  |
|  |  | |  |  |
| Procurement ($) | | | | |
| Item | | Vender | | Dollars |
|  | |  | |  |
|  | |  | |  |
|  | |  | |  |
| Contributions (not included in the total IRAD resource request) | | | | |
| Contribution Description | | Contribution Source | | Equivalent $ |
|  | |  | |  |
|  | |  | |  |

**II. (IF MULTIPLE YEAR-EFFORT) RESOURCE REQUIREMENTS TABLE**

*\*Receiving funding for FY23 does* ***not*** *guarantee funding for future fiscal years. Future year funding is depending on progress review and funding availability. If not proposing a multi-year effort, delete this section.*

**Year 2: FY??**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Civil Servant Labor (FTE) | | | | |
| Role | Name | | Code | FTE |
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|  |  | |  |  |
| Contract Labor ($) | | | | |
| Role | Name | | Contract | Dollars |
|  |  | |  |  |
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|  |  | |  |  |
| Procurement ($) | | | | |
| Item | | Vender | | Dollars |
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| Contributions (not included in the total IRAD resource request) | | | | |
| Contribution Description | | Contribution Source | | Equivalent $ |
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Year 3: **FY??**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Civil Servant Labor (FTE) | | | | |
| Role | Name | | Code | FTE |
|  |  | |  |  |
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|  |  | |  |  |
| Contract Labor ($) | | | | |
| Role | Name | | Contract | Dollars |
|  |  | |  |  |
|  |  | |  |  |
|  |  | |  |  |
| Procurement ($) | | | | |
| Item | | Vender | | Dollars |
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|  | |  | |  |
| Contributions (not included in the total IRAD resource request) | | | | |
| Contribution Description | | Contribution Source | | Equivalent $ |
|  | |  | |  |
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**III. PARTNERSHIPS**

*List all partners on this proposal (including other NASA centers, other federal agencies, industry, and/or universities. For each partner, list and discuss the partner’s role and contribution in accomplishing the stated goals. List all partner contributions in Section C; Part* ***I: Resource Requirement Table****. If there are no proposed partnerships, state so.*

Partner: Partner Role:

|  |  |
| --- | --- |
|  |  |
|  |  |
|  |  |

**III. BUDGET JUSTIFICATION NARRATIVE (Optional)**

*Describe the budget requested, its execution, reserves, if any, and known risks.*

**SECTION F: REFERENCES**

*This section may only be used for references cited in the proposal. Supplementary information augmenting the proposal* ***may not*** *be included and will not be reviewed.*