

## **Frequently Asked Questions (FAQs) for the 2019 Dark Matter New Initiatives for High Energy Physics FOA (DE-FOA-0002112) and LAB Solicitations (LAB 19-2112).**

**Please read the FOA and Lab Solicitation for the complete information and all guidelines.**

**Please see background info at the bottom.**

The DOE web site had a big reorganization over the weekend of May 18.

- To get to the web site with reports, please go to:  
<https://science.osti.gov/hep/Community-Resources/Reports>
- The BRN workshop report can be found here:  
[https://science.osti.gov/-/media/hep/pdf/Reports/Dark\\_Matter\\_New\\_Initiatives\\_rpt.pdf](https://science.osti.gov/-/media/hep/pdf/Reports/Dark_Matter_New_Initiatives_rpt.pdf)
- The new Funding Opportunities link is:  
<https://science.osti.gov/hep/Funding-Opportunities>
- The FOA for Dark Matter New Initiatives is:  
[https://science.osti.gov/-/media/grants/pdf/foas/2019/SC\\_FOA\\_0002112.pdf](https://science.osti.gov/-/media/grants/pdf/foas/2019/SC_FOA_0002112.pdf)
- This FAQ file can be found here:  
[https://science.osti.gov/-/media/hep/pdf/faq/FAQ\\_DM\\_New\\_Initiatives-0002112.pdf](https://science.osti.gov/-/media/hep/pdf/faq/FAQ_DM_New_Initiatives-0002112.pdf)

## **FAQ**

**These FAQ are only samples of possible questions and answers and are provided as additional clarification only. They do not replace or override any part of the solicitations.**

**When “FOA” is used below, please consider it to mean the FOA and/or the associated Lab Solicitation.**

### **1. What is the primary goal of this FOA?**

The primary goal of this FOA is to provide funds to support the engineering, technical, other professional and M&S needs of the scientific teams in order to develop a design and execution plan for a small dark matter project. The project should be ready for review and consideration to move to the project execution (fabrication) phase at the end of the award period. It should support the Dark Matter Basic Research Needs (BRN) study’s Priority Research Directions (PRD) and make use of DOE infrastructure and/or technology capabilities.

It is assumed that you will describe your science team will develop the scientific justification and carry out research efforts in support of the award.

## **2. What is excluded in this FOA?**

This FOA is to develop a small project design and execution plan (see #1 above) such that it's ready to be reviewed and considered for progressing to the project execution (fabrication) phase at the end of the award period.

It is to cover costs typically associated with developing a small project design, including a design report, final technology R&D and prototyping if required to develop the design.

This FOA is not for:

- 1) doing generic or long term technology R&D,
- 2) doing technology R&D ONLY, without having the project design ready for review at the end of the award,
- 3) upgrades to projects that haven't completed their current fabrication phase,
- 4) small contributions to larger projects,
- 5) cases in which cost for fabrication phase of the project being designed is expected to be above the limits described in the FOA,
- 6) carrying out the project execution (fabrication) phase,
- 7) carryover out the experimental operations, or
- 8) primarily funding your science team.

## **3. Do you have to submit an LOI? What is its purpose?**

We encourage people to submit a LOI describing the project concept and include as full a list of scientific collaborators and institutions as possible. The LOI's will enable us to determine how many different concepts are being proposed and which institutions/scientists are part of the teams. This helps us plan for the review process.

The LOI is **not** going to be used as a gateway to make a decision on your proposal.

## **4. What will I be told about the LOI after HEP reads it?**

Only HEP will read the LOI and will send out an acknowledgement of receipt.

## **5. If I didn't submit an LOI can I still submit a proposal?**

Yes, you can still submit a proposal.

## **6. Are there guidelines for the budget?**

The budget should cover costs typically associated with developing a small project design and execution plan (see #1 above) such that it's ready to be reviewed and considered for progressing to the project execution (fabrication) phase at the end of the award period. This would typically include final technology R&D and prototyping if required to develop the design, the technical design report, project execution plan (including technical scope, budget, timeline and management aspects) and other associated documentation.

The proponents may want to describe how their current estimate of the costs for the project fabrication phase is credible such that it will be within the limits for a small project as described in the FOA.

The review committees will evaluate each proposal by considering “reasonableness of budget” as one of the review criteria described in the FOA.

**7. Why do you use consortium instead of collaboration?**

In this FOA, we use the designation “consortium” instead of “collaboration”, to emphasize that the proposals come from and are sent to a single institution (whether this is a lab or university is up to the consortium). This is in contrast to a “collaboration” of groups, where each group submits a proposal and receives funds separately.

**8. How can teams apply?**

Applications may be submitted by a single or multi-institutional consortium. For Track 2, only multi-institutional consortia may apply.

**9. The FOA states that consortia may be Lab-led or University-led, outlining requirements for each case. However, Table 4 states that Lab-led consortia are “encouraged”. What is the difference?**

This FOA, focused on small project design, imposes no restrictions on the lead institution. However, if the design is selected through a (to be determined) competitive process to move to the next phase (project fabrication) following completion of this award, DOE expects to assign a DOE laboratory to lead the project execution (fabrication) stage. Labs (and some Universities) have project management expertise that may be helpful during the development of the small project concept, should your proposal be selected under this FOA.

**10. Can DOE Labs be part of any consortium proposal and how will they be funded?**

DOE National Laboratories can be part of any consortium proposal and their budgets should be included in the proposal. However, if the proposal is successful, participating DOE Labs will be funded directly through the DOE Field Work system.

**11. How will institutions that are not DOE Labs be funded when they are part of a consortium?**

Their budget must be included in the proposal, and they should be funded as subcontracts or subawards by the Lead Institution. Any subcontract costs should be included in the proposal budget.

**12. Should a consortium apply to the FOA or the Lab Call?**

If a consortium is led by DOE Lab, the proposal should be submitted to the Lab Call (LAB 19-2112). Otherwise, it should be submitted to the FOA (DE-FOA-0002112).

**13. How are multi-institutional consortia proposals submitted?**

Multi-institutional consortia should submit a single proposal via the lead institution. Applications must include the complete budgets and tasks for each institution involved as well as letters of institutional commitment. The research plan and its associated budgets should leave no confusion about which institution and which PI will carry out which efforts.

**14. Are there limits to the number of proposals an institution or an applicant can submit, or participate in?**

There are no limits. PIs and institutions are encouraged to focus their efforts on drafting high-quality innovative proposals that support the Dark Matter Basic Research Needs (BRN) study Priority Research Directions (PRD).

**15. Can University or Laboratory scientific staff and postdoctoral fellows be supported on the award? Can scientist support include faculty summer salary? Can laboratory scientific staff such as chemists and material scientists be supported on the award? Can laboratory scientific HEP staff not currently supported on Dark Matter research funds be supported on the award?**

Typically, if a scientist is supported by HEP (either by a lab or a grant) they have some leeway to spend a fraction of their time to develop future projects and experiments.

DOE laboratory scientific staff (currently part of the DOE/HEP program) are not to be supported with award funds. It is assumed that lab scientists (staff scientists, postdocs) are already supported by the lab on a research budget. Scientists at DOE labs that are already supported by a non-HEP program can be supported to a small extent, and this will be considered when the review looks at “reasonableness of budget”.

Limited university scientific staff, including postdoctoral fellows, may be supported if the work is closely aligned to carrying out the proposed technology R&D and project design efforts.

It is assumed that most university scientists (faculty, research scientists, postdocs and grad students) are already supported on research grants. However, since a university may not already have an HEP grant that would cover dark matter studies, we have left some leeway such that a small amount of scientist support can be requested.

As stated previously, “reasonableness of budget” is a review criteria that all proposals will be evaluated on.

**16. If this FOA or Lab call isn't for scientist support, how can I get support for my scientists?**

Scientists in the HEP program are typically supported on HEP research funds, either via university grants or lab research programs. These funds support scientific team to carry out projects and experiments aligned with the priorities in the HEP program. This includes efforts at all phases – designing, building, and carrying out data-taking operations and analysis – as part of the long term efforts of the team as it moves through the different phases of an experiment.

Note that the HEP research “Comparative Review” FOA or laboratory FWPs can be used as the avenue to apply for HEP research funds.

**17. What is the typical award size? What is the typical award duration?**

- For Track 1, award amounts are expected to range from \$500,000 to \$2,000,000 and the award period is expected to be 1-2 years.
- For Track 2, award amounts are expected to range from \$750,000 to \$4,000,000 and the award period is expected to be 3-4 years.

**18. Can you apply to this FOA if you already have a QIS exemplar project?**

Scientific consortia awarded an exemplar project using the Quantum Information Science Enabled Discovery (QuantISED) for HEP FOA DE-FOA-0002077 (or the companion Program Announcement to the DOE National Laboratories LAB 19-2077) are not eligible under this FOA.

- If you have applied to the QuantISED FOA and have not been approved as a QIS exemplar project, you are still eligible to apply under this FOA. Only funded QIS exemplar awards are ineligible. If your proposal is funded in the QIS program, at that time, you would be disqualified to be funded under this FOA. If the QIS funding status of your proposal is not known, you may still want to propose to this FOA.
- If you are currently funded for QIS R&D, you are eligible under this FOA to develop your concept to a stage ready for consideration to move to the project fabrication phase.
- If you are currently funded in the QIS program, but NOT in as an exemplar project, you are eligible to apply under this FOA. If your project is approved as a QIS Exemplar project, we will not also fund the same scope via the DM New Init. The reason for keeping them separate is to not “double dip”. If your project is eligible for both FOAs, you should consider applying to both.

**19. If my dark matter concept gets designed using QIS or other funds, can it be considered for a DM project fabrication?**

HEP expects eligibility for reviewing designs for small dark matter projects aligned with one of the PRDs to be primarily (but not absolutely) limited to awardees from this FOA.

**20. What happens if I miss the May 30, 2019 deadline due to special circumstances?**

Delays in submitting letters of intent, pre-applications, and applications may be unavoidable. DOE has accepted late submissions when applicants have been unable to make timely submissions because of widespread technological disruptions or significant natural disasters. DOE has made accommodations for incapacitating or life-threatening illnesses and for deaths of immediate family members. Other circumstances may or may not justify late submissions.

Unacceptable justifications include the following:

- Failure to begin submission process early enough.
- Failure to provide sufficient time to complete the process.
- Failure to understand the submission process.
- Failure to understand the deadlines for submissions.
- Failure to satisfy prerequisite registrations.
- Unavailability of administrative personnel.
- An upper respiratory infection (a “cold”) the week of the deadline.

You are responsible for beginning the submission process in sufficient time to accommodate reasonably foreseeable incidents, contingencies, and disruptions.

**21. What qualifies as near-term technology research and development and can this R&D continue for the full 4 years of Track 2.**

Near-term technology research and development (R&D) is for directed activities needed to demonstrate readiness prior to moving to the design phase of the small project. The near-term technology studies can include technology development, prototyping, demonstration and risk reduction efforts. Near-term technology R&D should be completed in the first 1-2 years followed by 1 to 2 years to pursue design studies that culminates in a design report and execution plan for carrying out the small project as described in Track #1.

**22. What if I'm not sure which PRD to use?**

You must choose only one PRD and state which PRD your proposal is responding to, as required in the FOA.

**23. Do I have to use DOE infrastructure and/or technology capabilities?**

As stated in the FOA, "The DOE SC program in High Energy Physics (HEP) hereby invites applications to develop the design and execution plans for small projects to carry out dark matter particle searches, making use of DOE laboratory infrastructure and/or technology capabilities. " You should describe how your project will make use of DOE infrastructure and technology expertise as stated in the FOA.

**24. Is it appropriate to mention non-DM synergies?**

Yes, you can mention these, but it is not required.

**25. Are there requirements for showing institutional commitment or for letters of concurrence?**

Applicants are strongly encouraged to provide evidence of their institution's commitment. They are also encouraged to provide letters of concurrence of collaboration by each institution. There are no specific requirements on page length (though typically 1 page should be sufficient) or signatories.

**26. Can scientists on the collaboration be supported by other agencies?**

It is fine to have scientists in your collaboration that are supported by non-HEP research funding. The team can develop a project design that will include contributions from other sources, within the limits described in the FOA.

**27. I am just putting together the scientific team now. Is this OK?**

It is assumed that the PI will put together a scientific team (see #1) to develop the scientific justification and research plan for the project, as well as oversee the engineering and technical efforts funded as part of a successful proposal. The consortia can consist of scientists at universities, labs or even international institutions (though the PI of the proposal needs to be from a US institution).

**28. When will the FOA funding begin?**

We hope to start funding as early as Sept 1, 2019. You are welcome to give a start date after this.

**29. Does the table of contents count towards the 25 page limit?**

No, it does not count towards that limit.

**30. There's a typo in the LAB FOA:**

[https://science.osti.gov/-/media/grants/pdf/lab-announcements/2019/LAB\\_19-2114.pdf](https://science.osti.gov/-/media/grants/pdf/lab-announcements/2019/LAB_19-2114.pdf)

If you look on page 22 of the pdf file (labeled as page 16 in the FOA), you will see some bullets on the "DOE COVER PAGE". The 7<sup>th</sup> bullet down says

Funding Opportunity FOA Number: DE-FOA-0002112

It should be

Funding Opportunity FOA Number: LAB 19-2112

Please use LAB 19-2112 in your proposal, *not* DE-FOA-0002112.

**31. Can we get an extension of the submission deadline to ensure that we can diligently scrutinize and prepare the proposal, secure the appropriate DOE authorization as a National Laboratory Contractor?**

We cannot extend the deadline for the FOA for one applicant without extending it for everyone – and the deadlines are driven by the need to have reviews in place (including a panel review) in time for funding decisions in this fiscal year.

**32. In preparing a proposal for Track 2, do we have to specify exact budget for years 3-4?**

You should refer to the FOA for the requirements. The FOA (section IV.D.2) proposal narrative section specifies the budget requirements for tracks 1 and 2.

**33. Are small businesses allowed to participate and submit a proposal?**

The FOA does not state anywhere that the lead institution has to be a lab or university, only that it has to be domestic. Note however that applications from for-profit organizations that propose research related to current commercial activity may be declined without merit review.

**34. What's the difference between "letters of institutional commitment" and "letters of concurrence of collaboration"**

You should refer to the FOA for requirements, which we are not allowed to change. As the solicitation notes, the proposal overall should be clear on who is doing what.

Letters of institutional commitment and Letters of concurrence can be the same letter. All institutions (including lead and partner) should have a letter which includes a statement of the institutions commitment to the collaboration, and the intention to work with the lead institution on the project. The letters do not have to spell out exactly what the University or

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Lab plans to contribute, but it would be helpful if it were to include what the institution is committing to (and expecting from) the collaboration (i.e. scientist support for planning, building, commissioning and data taking and analysis (if the experiment goes forward). It would also be helpful if the letter were to describe any in-kind contributions from the institution.

### **BACKGROUND – HEP program & Cosmic Frontier subprogram**

HEP is a mission-oriented agency, with a research program that follows the “P5” strategic plan, the last of which was developed in 2014. This plan recommended the science drivers that defines the HEP mission need, and prioritized the program of projects and experiments that are needed in order to meet those mission needs. The goal is to make big leaps in capabilities, and of course science results.

Our priority for providing funding is for activities that support the experiments/projects in our program. In practice, scientists in our program, supported on university grants and at the DOE labs, are typically part of a large experimental collaboration that participates in all phases from design, fabrication, operations and data analysis of these experiments/projects. This is typically what reviews well (i.e. being part of an experimental collaboration that carries out experiments/projects in our program) and therefore gets supported.

The DOE HEP program is primarily accelerator-based research, but also includes the Cosmic Frontier Experimental Research subprogram that uses naturally occurring data. For dark matter, the program priorities are focused on elucidating the nature of dark matter. Searches for dark matter particles currently are being carried out in the Cosmic, Energy, and Intensity Frontiers, along with theoretical studies (Theory subprogram) and technology studies (Advanced Detector R&D subprogram). For some more details on the HEP program and how it works, you may want to look at some of the recent talks at HEPAP (High Energy Physics Advisory Panel) or AAAC (Astronomy and Astrophysics Advisory Committee) meetings, which are available online.