

HR001125S0008 SUNSPOT
Frequently Asked Questions (FAQs)
as of 3/5/2025

28Q: Are there guidelines for filling out the Intellectual Property table in Volume I of the proposal template?

28A: According to DFARS 252.227-7017, proposers need to complete the Intellectual Property (IP) table to capture all IPs being delivered to the Government under this contract and any restrictions being imposed onto the Government for the protection of these IPs. If no restrictions are intended, the proposer should state “none”. The prime proposer is responsible for compiling all data rights assertions, including those of subcontractors. Proposers should only include background IP(s) onto this table if the IPs are integrated into the deliverable and will affect the Government’s intellectual rights and ability to use it.

DARPA requests that the following table be completed by all proposers, including those requesting Cooperative Agreement (CA) and Other Transaction (OT).

NONCOMMERCIAL				
Technical Data and/or Computer Software To be Delivered with Restrictions	Summary of Intended Use in the Conduct of the Research	Basis for Assertion	Asserted Rights Category	Name of Person Asserting Restrictions



27Q: Given that reference VUV comb will be part of the government IV&V process for frequency stabilization and locking, can one assume that the coherence of the comb will be transferred to the VUV laser delivered under this effort?

27A: The proposed VUV source should not rely solely on the coherence of an external optical comb or other Government furnished equipment for ‘coherence transfer’. The proposed system should describe the full design and implementation of a VUV source with the requisite phase noise/linewidth. This may include, for instance, the means to stabilize the VUV source to an ULE cavity or an atomic transition via conventional spectroscopic techniques. The access to a comb and frequency metrology is intended for absolute frequency reference to a stable atomic transition and to enable long duration Thorium spectroscopy. This access to an external comb or other Government furnished equipment is not intended for ‘coherence transfer’ or as a method to achieve the program metrics.

26Q: Is it within the scope of the program to study and use materials such as nonlinear optical crystals for VUV generation?

26A: There are no restrictions on the materials which can be used in the technical approach. The proposal should justify how the developed laser can meet and demonstrate program metrics. Exploratory studies of novel materials that do not culminate in a functional laser are out of scope for this effort.

25Q: Is it possible to include a FFRDC as a subcontractor or an unfunded collaborator in the proposal?

25A: Per Section IV of the BAA “UARCs and FFRDCs interested in this solicitation, either as a prime or a subcontractor, should contact the Agency Point of Contact (POC) listed in the Overview section prior to the proposal (or abstract) due date to discuss potential participation as part of the government team or eligibility as a technical performer.” If an unfunded collaborator is included as part of the proposal, the prime would need to provide justification and how the arrangement brings value to the program.

24Q: Is there a Phase III to SUNSPOT?

24A: No. Per the BAA, SUNSPOT is a 24-month program with a 12-month base period and a 12-month option.

23Q: Are there specific metrics for VUV comb or pulsed laser designs?

23A: No. The metrics are as specified in the BAA. The laser output at 148.382 nm should have $>1\mu\text{W}$ of power and <30 Hz in linewidth. The developed laser should be able to perform spectroscopy on Thorium-229.

22Q: Is there a preferred laser design for follow-up efforts to SUNSPOT?

22A: No. Proposed efforts should focus on meeting the program metrics listed in the SUNSPOT BAA.

21Q: Should I want procure equipment from a domestic or foreign company, is it preferable that the company be included as a subcontractor on the team?

21A: It is up to the proposer to determine the team composition or source of supplies/equipment unless there is a national security concern. A subcontractor is a business that carries out work, research, tasks for the prime contractor, in support of the overall program goals and objectives, while a equipment vendor is a business that only supplies the equipment and has no direct impact to the performance of the program. Although material vendors are required to be identified under the material tab within Attachment D, they are not subcontractors and do not perform the work as highlighted within the Statement of Work.

20Q: What are the expectations for SWaP? Are there SWAP metrics?

20A: There are currently no SWaP metrics. The expectation is that the design and associated components should be amenable to a low SWaP solution in a subsequent program. As indicated in the BAA, proposers should include an analysis of the projected SWaP of the proposed laser source, and a discussion of how future systems-level integration may reduce the SWaP to enable compact, portable VUV sources based on the proposed concept. All components required in the system such as cryogenic and power handling components, stabilization circuitry, and control infrastructure will count towards the SWaP.

19Q: Should the program focus on a hardware deliverable or a laboratory demonstration?

19A: Although a low SWaP prototype is not the goal of SUNSPOT, performers should be cognizant that they will need to describe how they will transport the deliverable system to the government without requiring a rebuild at the government site.

18Q: Can one lead multiple teams/efforts if there are multiple approaches? Or is it preferable to focus on a singular direct approach?

18A: Proposers can submit more than one proposal as long as they focus on significantly different approaches.

17Q: Is it possible to have a high-risk main effort with a backup approach?

17A: Due to the accelerated timeline for SUNSPOT, a high-risk approach with a backup should have a clearly defined decision point where the choice between the two approaches would be made. The decision point should be placed early enough in the program so that it allows for sufficient time for the alternative approach to be adopted and carried to the program metrics.

16Q: Should proposers focus on the realization of the VUV or the SWaP?

16A: Proposers should prioritize realizing the VUV laser with the SUNSPOT program metrics. As indicated in the BAA, there are currently no SWaP metrics within the SUNSPOT program. However, the expectation is that the design and associated components should be amenable to a low SWaP solution in a subsequent program. Proposers should include an analysis of the projected SWaP of the proposed laser source, and a discussion of how future systems-level integration may reduce the SWaP to enable compact, portable VUV sources based on the proposed concept. All components required in the system such as cryogenic and power handling components, stabilization circuitry, and control infrastructure will count towards the SWaP.

15Q: Are foreign proposers and collaborators allowed?

15A: Yes, per the BAA Section IV: Non-U.S. organizations and/or individuals may participate to the extent that such participants comply with any necessary nondisclosure

agreements, security regulations, export control laws, and other governing statutes applicable under the circumstances.

14Q: What is the target budget size? Or team size?

14A: Proposed budgets and team size should be realistic and commensurate with the technical work proposed. Both underestimated and overestimated budgets are discouraged.

13Q: To meet the timeline of the program, are equipment funding and up-front costs in year 1 acceptable?

13A: Equipment requests and other up-front costs are allowed if they are required for attaining the program goals.

12Q: Can the proposal be tied to SBIRs and STTR funding instruments?

12A: No. SBIRs and STTRs are separate efforts. Proposals should be complete in themselves.

11Q: Can equipment be procured from outside of US?

11A: Yes, equipment required for the effort can be obtained from any source that will supply the desired equipment within the proposer's research timeline.

10Q: Is there a preference for prime or sub assignment for laser developer vs spectroscopy tester?

10A: The team structure is up to the discretion of the proposer.

9Q: What specific technical pitfalls for VUV generation were referred to in the Proposers Day briefing?

9A: The technical pitfalls depend on the specific approach. It is expected that proposals should include a discussion of pitfalls and risk-mitigation for proposed approaches.

8Q: Can the performers be present during the validation tests at the government facilities?

8A: Yes, performers may be present during the validation testing.

7Q: Does the laser package need to have frequency stabilization capabilities?

7A: Standard laser stabilization techniques are acceptable. The laser package should be able to take feedback for stabilization

6Q: What does the 30 Hz linewidth metric mean?

6A: This metric refers to the instantaneous linewidth of the proposed VUV source. Alternately, equivalent metrics for the phase noise may be proposed as long as they are

commensurate with accepted definitions of interconversions between phase noise and instantaneous linewidth. Ultimately, this metric is based on the need for high-resolution spectroscopic measurements of the Thorium clock transition with a resolution commensurate with the lattice-induced decoherence rate. This decoherence rate is currently estimated to be in the 2π (150 Hz) range – thereby mandating a laser source with an instantaneous linewidth that is significantly lower than the decoherence rate.

5Q: Can one proposal contain two different technical approaches and anticipate refinement during the period of performance?

5A: Due to the accelerated timeline for SUNSPOT, a proposal involving two technical approaches with a refinement/down-select during the program is not encouraged.

4Q: Can one make significant progress to critical intermediate steps or subcomponents at the end of the 12 months or does one need to meet Phase 1 metrics?

4A: The program metrics need to be demonstrated in 24 months. Partial solutions in an abbreviated timeline are not desired.

3Q: Are there any Phase 1 metrics?

3A: The Phase 1 metrics should be supplied by the proposer. They should reflect the mitigation of the major technical risks for the specific approach and sufficiently compelling data or proof-of-concept demonstrations to lend confidence that the program metrics can be satisfied by the scheduled end of the program.

2Q: Is a pulsed laser or CW laser preferred? Similarly, for optically or electronically pumped source?

2A: No technical approach is preferred. Proposers should enumerate how their approach will reach the goals of the program.

1Q: Is room temperature operation required?

1A: No but the cooling schemes, if required, should be accommodated by a path to low SWaP.