

HR0011SB20254-13
Pulsed High-power Laser Accelerators to Study radiation Hardening (PHLASH)
Frequently Asked Questions (FAQs)

Updated 12/02/2025

1. We note that the prerequisite preliminary design is for 100MeV, but the aim of the program is to demonstrate 50MeV. Is this correct or are both meant to be the same, and if so, 50 or 100 MeV?
A: The reference to a preliminary design of a 100 MeV design is mentioned in the Phase I description. As this is a direct to Phase II solicitation, proposers must demonstrate that a “Preliminary design, with schematics, of a compact 100MeV, >100Hz repetition rate, LWFA system showing all required components and their specifications” has been achieved in order to submit a proposal. The solicitation asks for a 50MeV physical prototype, not just a preliminary design.
2. For 50 MeV electron beam prototypes, what beam quality thresholds (emittance, energy spread) are required to be equivalent to heavy-ion SEE surrogates?
A: For the 50 MeV beam there are no requirements in the SBIR for beam emittance at present. That being said, monochromaticity is a trait that benefits single event effect testing, and successful performers will demonstrate a path towards a monochromatic beam.
3. Regarding gas target design, does DARPA require continuous-flow plasma targets for 1 kHz operation, or are pulsed/refreshable cell-based targets acceptable in Phase II?
A: There is no requirement on the plasma targets, solely the capability of 1-kHz operation.
4. For footprint constraints (<250 m³), is there a maximum optical path length per stage DARPA expects for LWFA scalability to 100 GeV?
A: There is no maximum optical path length.
5. The aim of the program is to demonstrate 50MeV, but the prerequisite preliminary design is for 100MeV. Is this correct, and if so, is the design for 50 or 100 MeV?
A: As this is a direct to Phase II solicitation, proposers must demonstrate that the initial analysis of a “Preliminary design, with schematics, of a compact 100MeV, >100Hz.
6. Is a demonstration which separates the scalable laser technology development from the LPA demonstration responsive to the PHLASH program?
A: Yes, although separate is not preferred. We understand that space constraints may require this.
7. Are hardware purchases allowed?
A: Yes.

8. Can contract payments be structured so that large expenditures can be covered up front?

A: Yes.

9. Do you anticipate making more than one award?

A: We are not stating the number of awards to be made.

10. Regarding the one of Phase II deliverables, limited by the total budget, instead of demonstrating 50 MeV, 100 Hz accelerator, scalable to 1 kHz, is it acceptable if we build a seed portion of the laser driver operating at 1 kHz already, and demonstrate 50 MeV at a low repetition rate (1~10Hz) limited by the amplifier?

A: Traceability of the laser amplifier to 1 kHz is necessary for any Direct-to-Phase-2 proposal. We understand that capital equipment availability may limit capacity in Phase 2, but proposals that do not seek to address the deliverables of the SBIR will be non-compliant.

11. Is the topic restricted to the development of pulsed laser-based solution to electron beam-based radiation testing, or would a proposal involving a different approach to electron beam radiation testing be responsive?

A: Other solutions would not be responsive to the SBIR.