Special Notice

Photonic Integrated Circuit Architectures for Scalable System Objectives (PICASSO) Proposers Day
DARPA-SN-26-25
December 22, 2025

Defense Advanced Research Projects Agency
Microsystems Technology Office
675 North Randolph Street
Arlington, VA 22203-2114

PICASSO Proposers Day
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Photonic Integrated Circuit Architectures for Scalable System Objectives (PICASSO)
Defense Advanced Research Projects Agency (DARPA)
Microsystems Technology Office (MTO)

Posting Date: December 22, 2025
Event Date: January 16, 2026, at 8:00 a.m. Eastern Time (ET)
Registration Deadline: January 9, 2026, at 5:00 p.m. Eastern Time (ET)
Registration Website: PICASSO Proposers Day
Attendance is restricted to U.S. Persons only (U.S. Citizens and Permanent Residents)
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E-mail: PICASSO@darpa.mil

PROPOSERS DAY DESCRIPTION:
The Defense Advanced Research Projects Agency (DARPA) will host an in-person Proposers Day in support of the DARPA Program Solicitation (PS) for PICASSO on January 16, 2026, at the DARPA Conference Center (DCC), Arlington VA, from 8:00 a.m. to 5:00 p.m. ET. DARPA anticipates releasing the PS prior to Proposers Day. If released, the PS will be made available at https://sam.gov/.

The goals of the Proposers Day are:
(1) To introduce the science and technology community (industry, academia, and government) to the PICASSO program's vision and goals;
(2) To facilitate interaction between researchers with capabilities and interests relevant to the PICASSO program goals;
(3) To collect questions during the event that DARPA may answer and make available in a Question and Answer (Q&A) document; and
(4) To encourage and promote teaming arrangements among organizations that have the relevant expertise, research facilities, and capabilities for executing research and development responsive to the PICASSO program goals.

The Proposers Day will include overview presentations by government personnel and opportunities for team building among the participants. The meeting will start with presentations by DARPA that include a technical program briefing and contracting discussion to further describe the planned PS objectives and content. These will be followed by a Q&A session, a lightning round session, and PM sidebars.

PROGRAM OBJECTIVE AND DESCRIPTION:
Photonic Integrated Circuit Architectures for Scalable System Objectives (PICASSO) aims to create a generational pivot in photonics circuits and ensure United States dominance in photonics architectural and product innovation by creating the foundations for very large-scale photonics integration (VLPI). PICASSO will enable revolutionizing VLPI circuits use cases, from compute to light detection and ranging, by moving the field from its current component-oriented focus to a circuit- and system-level orientation with output measured and evaluated at the system level. The program will enable VLPI scaling as a force multiplier for future photonic capability, by enabling previously unobtainable functional expansion with predictable circuit performance.

The primary limitation to further scaling of circuit size and functionality is rooted in the fundamental properties of signaling with light. It manifests in two technical challenges:

Technical Challenge 1: Preserve optical signals while minimizing excess noise
Unlike in digital complementary metal-oxide-semiconductors where there is signal regeneration and noise filtering at every stage, analog optical signals in long processing chains experience significant optical attenuation and noise that cannot be simply restored with optical amplification due to inherited amplified spontaneous emission noise.

Technical Challenge 2: Mode control for predictable behavior
Signal degradation in optical systems occurs through spurious wave interactions, which are not seen in electronic systems. Performance is critically sensitive to scattering, coupling, mode leakage, back reflections, and spurious resonances. Over many stages, control of these errors becomes unpredictable, especially when combined with manufacturing variability and thermal and environmental instabilities.

Today, these challenges are handled by transduction and reconditioning the optical signals in the electronic domain. However, heavy usage of electronics prevents system-level gains in latency, efficiency, and bandwidth offered natively by photonics. Research in these areas has focused on improving the performance of individual photonic components. At best, these efforts have yielded incremental improvement. It has become apparent that the search for components with ideal performance cannot solve the problem of limited scaling.

The key to addressing the two technical challenges is to redirect the effort to circuit-level innovation. Inspiration can be drawn from electronics where individual transistors may suffer from performance limitations, but they are combined in circuits that achieve higher performance in terms of noise, linearity, power handling, stability, etc., compared to individual transistors. There emerges the concept of *perfect photonic circuits with imperfect components*. PICASSO seeks innovative circuit strategies for VLPI scaling of photonic circuits that combine multiple mitigation concepts to overcome the limitations of piecewise component-driven approaches.

This meeting will be held at the CUI level. Attendance is restricted by registration and to U.S. Persons only.

All attendees will be required to present Government-issued photo identification upon entry to the event. All U.S. Permanent Residents will be required to present their permanent residency card.

REGISTRATION INFORMATION:
Registration is limited by the venue capacity. The maximum number of registrants per organization may be limited. The determination of maximum participants per organization and what constitutes an organization will be made by the DARPA Program Manager. Registrations will be cut off at the registration deadline listed above or once attendance capacity is met, whichever comes first. Early registration is strongly recommended. Any change to the registration deadline will be captured via an amendment to this notice and an update to the registration website. **There will be no on-site registration.**

The Proposers Day is open only to registered potential proposers. The event is closed to the general public and media. An online registration form, preliminary agenda, links to required forms, meeting details, U.S. Permanent Resident and Foreign National Visit Request, and hotel information for the Proposers Day can be found at the registration website.

A completed DARPA Form 104, "DARPA Conference Center Visitor Requirements for Unclassified Meetings" must be filled out by all in-person attendees and submitted via email to PICASSO@darpa.mil. For additional information please refer to the Visitor Information page on the DARPA website (http://www.darpa.mil/policy/visitor-information DARPA Form 104 can be accessed at https://dtsn.darpa.mil/eform104/visitor/93ff8ac0-f082-4e46-b69e-2d85afe32027.

Additionally, all meeting registrants who are not U.S. Citizens must complete and submit the following:

- All U.S. Permanent Residents must submit a DARPA Form 60 "U.S. Permanent Resident and Foreign National Visit Request", which can be submitted via the following link: https://dtsn.darpa.mil/eform60/ Additional questions regarding foreign national visits to DARPA, or its events, may be sent to your DARPA Point of Contact or the Security and Intelligence Directorate International Security staff at SIDInternationalsecurity@darpa.mil.

All forms must be submitted no later than the registration deadline. Failure to complete and submit the required forms prior to the date and time noted above may result in cancellation of existing registration.

TEAMING:
While not required, DARPA is open to teaming amongst the community as appropriate and when strategic to achieve program outcomes. To facilitate the building of teams, Proposers Day registrants may choose to participate in the options below:

ATTENDEE LIST:
Participant contact information (name, organization, email address) will be included on a PICASSO Proposers Day attendee list distributed to other prospective proposers. Registrants may indicate during registration whether they approve distribution of their contact information.

PROPOSER PROFILE:
Interested parties should submit a one-page, profile consisting of their contact information (name, organization, email, telephone number, mailing address, and, if applicable, organization website), a maximum 100-word unclassified description of their technical competencies, and, if applicable, the expertise desired from other teams/organizations. Do not include any CUI information in the Proposer Profile. All profiles must be submitted through the registration form. Note that a submission of a Proposer Profile constitutes a consent for that profile to be shared with registered participants. Specific content, communications, networking, and team formation are the sole responsibility of the participants. Neither DARPA nor the DoW endorses the information and organizations contained in the consolidated teaming profile document, nor does DARPA or the DoW exercise any responsibility for improper dissemination of the teaming profiles.

REQUESTS THROUGH E-MAIL: Prospective proposers can also request the attendee list and/or the prospective proposer profile list through email at PICASSO@darpa.mil. All email requests must be received by January 12, 2026, at 5:00 p.m. Eastern Time (ET) and follow the same security requirements as Proposers Day attendees (e.g., government issued proof of U.S. Persons status, U.S. Permanent Residents must submit a DARPA Form 60). It is incumbent on email requesters to ensure all provided information is accurate. DARPA will not provide access to secure data transfer capabilities (e.g., DoD SAFE), and DARPA reserves the right to deny requests stemming from its vetting of requesters' security documentation.

LIGHTNING ROUNDS:
A lightning round will be held to facilitate interaction among attendees and to give an opportunity to showcase capabilities and build strong teams to solve the challenge presented in PICASSO. The 1-slide lightning round presentation should highlight proposer capabilities and teaming requirements and must include presenter's contact information. There is a limit of one presentation per organization, and presentations will be limited to three (3) minutes each. Registrants must indicate their intent to participate in the lightning round session during registration. Due to time constraints, lightning round presentations may be limited to the first 30 requests, but for any prospective proposer who submits presentation slides by the deadline below, that prospective proposer's presentation slides (along with those of the 30 presenters) will be distributed to all other confirmed Proposers Day attendees. Submitting a Lightning Round slide constitutes a consent to share its content with other registered participants.

All presentations must be in Microsoft PowerPoint or PDF format. Unclassified presentations should be emailed to PICASSO@darpa.mil no later than January 12, 2026, at 05:00 p.m. ET. Presentations should not contain any Controlled Unclassified Information (CUI) or classified information and must be suitable for unlimited public release. NO CLASSIFIED INFORMATION SHOULD BE SENT TO PICASSO@darpa.mil.

BREAKOUT SESSIONS:
One-on-one breakout sessions with the PICASSO Program Manager will be available during the Proposers Day. CUI discussion will be allowed. Advance registration is required. Breakout sessions will be scheduled from 2:00 p.m. to 5:00 p.m. ET. To request a session, please indicate your discussion topic and participating attendees (no more than five) when registering. Please note that all members participating in the breakout sessions must be successfully registered in order to attend. Requests submitted through registration do not guarantee selection for an individual session. All registered attendees chosen to participate in breakout sessions will receive notification containing their selection, scheduled time and location, and detailed guidance.

DARPACONNECT:
Entities who have not worked with DARPA before are encouraged to learn more about DARPAConnect, an initiative established to facilitate collaboration between DARPA and potential performers. The DARPAConnect team offers customized support, resources, and guidance on how to prepare ideas for high-impact conversations with DARPA program managers. Please visit DARPAConnect.us to access a digital hub of online resources, including a curriculum for self-paced learning, personalized support, and in-person and virtual events. To prepare for the Proposers Day, attendees can leverage the learning module on "Making the Most of a DARPA Proposers Day." In addition to the self-paced online materials, the DARPAConnect team is able to schedule one-on-one conversations to discuss specific ideas, questions, and paths to DARPA. Use the contact form at DARPAConnect.us or email the DARPAConnect team directly at darpaconnect@darpa.mil to request assistance.

ADMINISTRATIVE:
All administrative and technical questions should be directed to PICASSO@darpa.mil. Please refer to the Special Notice number (DARPA-SN-26-25) in all correspondence.

This Special Notice is issued solely for information and program planning purposes and does not constitute a formal solicitation for proposals or proposal abstracts; any so sent will be disregarded. In accordance with FAR 15.201(e), responses to this Special Notice are not offers and cannot be accepted by the Government to form a binding contract. Attendance is strictly voluntary and is not required to propose to subsequent Announcements (if any) or Solicitations (if any) on this topic. DARPA will not provide

reimbursement for costs incurred in responding to this Special Notice. Respondents are advised that DARPA is under no obligation to acknowledge receipt of any information received or provide feedback to respondents with respect to any information submitted under this Special Notice.