Fiber Attach Technology

Industry Connections Activity Initiation Document (ICAID)

Version: 1.0, 2 November 2021

IC21-010-01 Approved by the IESS SMDC 13 December 2021

Instructions

- Instructions on how to fill out this form are shown in red. It is recommended to leave the instructions in the final document and simply add the requested information where indicated.
- Shaded Text indicates a placeholder that should be replaced with information specific to this ICAID, and the shading removed.
- Completed forms, in Word format, or any questions should be sent to the IEEE Standards Association (IEEE SA) Industry Connections Committee (ICCom) Administrator at the following address: industryconnections@ieee.org.
- The version number above, along with the date, may be used by the submitter to distinguish successive updates of this document. A separate, unique Industry Connections (IC) Activity Number will be assigned when the document is submitted to the ICCom Administrator.

1. Contact

Provide the name and contact information of the primary contact person for this IC activity. Affiliation is any entity that provides the person financial or other substantive support, for which the person may feel an obligation. If necessary, a second/alternate contact person's information may also be provided.

Name: Wei Jiang
Email Address: wjiangmail@yahoo.com
Employer: Nanjing University
Affiliation: Nanjing University

IEEE collects personal data on this form, which is made publicly available, to allow communication by materially interested parties and with Activity Oversight Committee and Activity officers who are responsible for IEEE work items.

2. Participation and Voting Model

Specify whether this activity will be entity-based (participants are entities, which may have multiple representatives, one-entity-one-vote), or individual-based (participants represent themselves, one-person-one-vote).

The activity will be "Individual-Based".

3. Purpose

3.1 Motivation and Goal

Briefly explain the context and motivation for starting this IC activity, and the overall purpose or goal to be accomplished.

Over several decades, optical fiber has evolved into being an outstanding flexible optical waveguide. Its ability to maintain bandwidth and attenuation performance through multiple bends and twists cannot

be matched by any other transmission media. On the other hand, optical signal processing functions are now performed using many other material platforms. In addition to within fiber, micro-optic elements, optical benches, slab waveguides, printed waveguides, and integrated circuits- consisting of many materials and sizes- can be used to process light.

Unless optical functional elements are connected directly to each other, optical fiber serves as an optimum interconnect between them. With each new material platform or permutation of interfaces between each, a recurring problem occurs. An interface between an input or output of the device and a transmission optical fiber interconnect must be made. Within the photonics industry we call this interface “fiber attach.”

The goal of this activity is to analyze the varieties of fiber attach designs commonly available, and offer a guide to engineers, scientists, and designers for their use. This activity will serve as a precedent to defining common fiber attach standards for future use.

3.2 Related Work

Provide a brief comparison of this activity to existing, related efforts or standards of which you are aware (industry associations, consortia, standardization activities, etc.).

This effort will complement related (standards) activities such as
COBO (Consortium for on-board optics)
CPO (Co-packaged optics)

3.3 Previously Published Material

Provide a list of any known previously published material intended for inclusion in the proposed deliverables of this activity.

The following document will be used as a reference.
R. Marchetti, C. Lacava, L. Carroll, K. Gradkowski, and P. Minzioni, Coupling strategies for silicon photonics integrated chips, Photonics Research, vol. 7, 201 (2019).

3.4 Potential Markets Served

Indicate the main beneficiaries of this work, and what the potential impact might be.

This effort may serve potential markets including but not limited to
Telecommunications
Signal processing
Computing
Sensing
Manufacturing
Medicine
Aerospace
Transportation

3.5 How will the activity benefit the IEEE, society, or humanity?

This activity will potentially benefit the IEEE and humanity by improved reliability and lower cost of the fiber attach technology.

4. Estimated Timeframe

Indicate approximately how long you expect this activity to operate to achieve its proposed results (e.g., time to completion of all deliverables).

Expected Completion Date: 12/2023

IC activities are chartered for two years at a time. Activities are eligible for extension upon request and review by ICCom and the responsible committee of the IEEE SA Board of Governors. Should an extension be required, please notify the ICCom Administrator prior to the two-year mark.

5. Proposed Deliverables

Outline the anticipated deliverables and output from this IC activity, such as documents (e.g., white papers, reports), proposals for standards, conferences and workshops, databases, computer code, etc., and indicate the expected timeframe for each.

The proposed deliverables include:

1. Identify gaps in the existing standards in the fiber attach technology and a plan to address these gaps.
2. Recommend proposals of standards/guides/best practices based on the gap assessment.
3. Author a white paper report to summarize the above results.

The anticipated timeline will be: complete a preliminary White Paper 8 months after project start, interim findings after 14 months, and a final report and recommendation.

5.1 Open Source Software Development

Indicate whether this IC Activity will develop or incorporate open source software in the deliverables. All contributions of open source software for use in Industry Connections activities shall be accompanied by an approved IEEE Contributor License Agreement (CLA) appropriate for the open source license under which the Work Product will be made available. CLAs, once accepted, are irrevocable. Industry Connections Activities shall comply with the IEEE SA open source policies and procedures and use the IEEE SA open source platform for development of open source software. Information on IEEE SA Open can be found at https://saopen.ieee.org/.

Will the activity develop or incorporate open source software (either normatively or informatively) in the deliverables?: No

6. Funding Requirements

Outline any contracted services or other expenses that are currently anticipated, beyond the basic support services provided to all IC activities. Indicate how those funds are expected to be obtained (e.g., through participant fees, sponsorships, government or other grants, etc.). Activities needing substantial funding may require additional reviews and approvals beyond ICCom.

This activity does not anticipate extra funding beyond the basic services provided by the IEEE Industry Connections. If new funding needs arise during the progress of this activity, a revised ICAID with such needs will be submitted for approval.

7. Management and Procedures

7.1 Activity Oversight Committee

Indicate whether an IEEE Standards Committee or Standards Development Working Group has agreed to oversee this activity and its procedures.

Has an IEEE Standards Committee or Standards Development Working Group agreed to oversee this activity?: Yes

If yes, indicate the IEEE committee's name and its chair's contact information.

IEEE Committee Name: Photonics Standards Committee
Chair's Name: John Kulick
Chair's Email Address: j.kulick@ieee.org

Additional IEEE committee information, if any. None

IEEE collects personal data on this form, which is made publicly available, to allow communication by materially interested parties and with Activity Oversight Committee and Activity officers who are responsible for IEEE work items.

7.2 Activity Management

If no Activity Oversight Committee has been identified in 7.1 above, indicate how this activity will manage itself on a day-to-day basis (e.g., executive committee, officers, etc).

The activity will be managed by an executive committee as defined in the activity's policies and procedures.

7.3 Procedures

Indicate what documented procedures will be used to guide the operations of this activity; either (a) modified baseline *Industry Connections Activity Policies and Procedures,* (b) Standards Committee policies and procedures accepted by the IEEE SA Standards

Board, or (c) Working Group policies and procedures accepted by the Working Group's Standards Committee. If option (a) is chosen, then ICCom review and approval of the P&P is required. If option (b) or (c) is chosen, then ICCom approval of the use of the P&P is required.

The activity will follow the baseline Industry Connections Activity Policies and Procedures (P&P).

8. Participants

8.1 Stakeholder Communities

Indicate the stakeholder communities (the types of companies or other entities, or the different groups of individuals) that are expected to be interested in this IC activity, and will be invited to participate.

Individuals that develop or use the fiber attach technologies are invited to participate.

8.2 Expected Number of Participants

Indicate the approximate number of entities (if entity-based) or individuals (if individual-based) expected to be actively involved in this activity.

9 individuals have participated in the activities.

8.3 Initial Participants

Provide a number of the entities or individuals that will be participating from the outset. It is recommended there be at least three initial participants for an entity-based activity, or five initial participants (each with a different affiliation) for an individual-based activity.

Use the following table for an entity-based activity:

Use the following table for an individual-based activity:

Individual		**Employer**	**Affiliation**
John Kulick		retired	self
Wei Jiang		Nanjing University	self
John Mazurowski		Pennsylvania State University	Pennsylvania State University
Benjamin Fasano		GlobalFoundries	GlobalFoundries
Randy K. Rannow		Silverdraft	Silverdraft
David Krohn		Light Wave Venture	Light Wave Venture
Ajey Jacobs		University of Southern California	University of Southern California
Adam Wichman		Wolf Greenfield	Wolf Greenfield
Sean Anderson		Macom	Macom
Xiaogang (Oliver) Chen		Crealights Technology Co. Ltd.	Crealights Technology Co. Ltd.

8.4 Activity Supporter/Partner

Indicate whether an IEEE committee (including IEEE Societies and Technical Councils) has agreed to participate or support this activity. Support may include, but is not limited to, financial support, marketing support and other ways to help the Activity complete its deliverables.

Has an IEEE Committee agreed to support this activity?: Yes

If yes, indicate the IEEE committee's name and its chair's contact information.

IEEE Committee Name: Photonics Standards Committee
Chair's Name: John Kulick
Chair's Email Address: j.kulick@ieee.org