

FY 25/26 DAGSI Research Topic

NOTE: Under the Cooperative Agreement, Technical Directorates have three options for topics. First, a topic can strictly be considered in the pool for the state allocation of funding. DAGSI will work across the TDs for this allocation. Second, the TD can be prepared to be a funding partner with the State of Ohio. This would include: providing additional funds to support additional recipients of a topic, or expand the proposers team to include additional members on a topic. Third, the TD may elect to fully fund a topic not selected for State of Ohio funding or to pursue University teams outside the State of Ohio. Contact lindsay.kotouch.2@us.af.mil for questions.

1. **Research Title:** Adaptive Platforms for Integrated Optical Coupling
2. **Individual Sponsor:** List the AFRL research topic sponsor's contact information

Dr. José Figueroa-Soto, AFRL/Rydi, Mr. Bernard Melus, AFRL/Rydi
AFRL/RYR Bldg 620, NE Delivery Dock
2241 Avionics Circle
WPAFB, OH 45433-7333
jose.figueroa-soto.1@us.af.mil

3. **Academic Area/Field and Education Level:** Electrical/Computer Engineering, (PhD level)
4. **Objectives:** The research objective is to design, fabricate, and demonstrate a low-loss optical coupling solution suitable for RF photonic integrated circuits.
5. **Description:** Integration of RF and optical integrated circuits requires navigating a number of challenges from design to fabrication. An approach for creating co-packaged photonic integrated circuits (PIC) between disparate technology platforms is desired. Solutions should be capable of including multiple single-mode optical waveguides/channels and consider optical loss a critical parameter. In addition, the potential to develop and fabricate RF interconnectors within the same material platform are highly desired. The project seeks to create passively-aligned interconnects, micro-reflectors, and/or waveguides, aiming to reduce assembly complexity.
6. **Research Classification/Restrictions:** Unclassified research, publicized literature must be publically app. Applicants must have U.S. Citizenship.
7. **Eligible Research Institutions:** Universities (DAGSI)
8. **PA Approval #:** AFRL-2025-4145

NOTE: Topics submitted to DAGSI must be approved for public release.