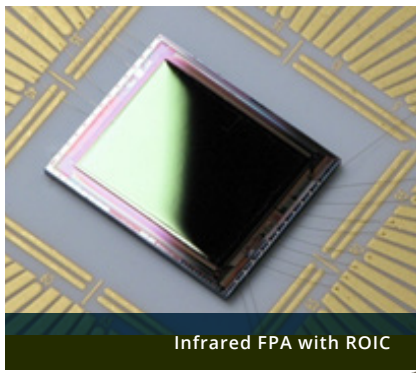
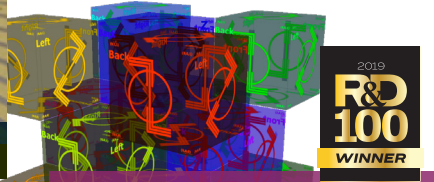


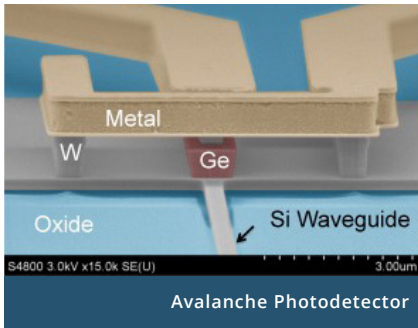
AWG RF Channelizer



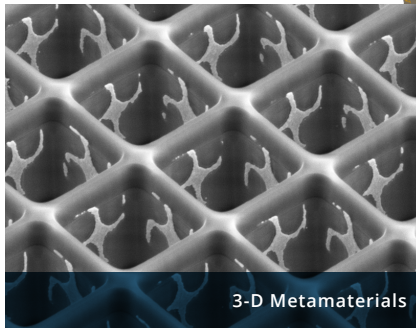
Infrared FPA with ROIC



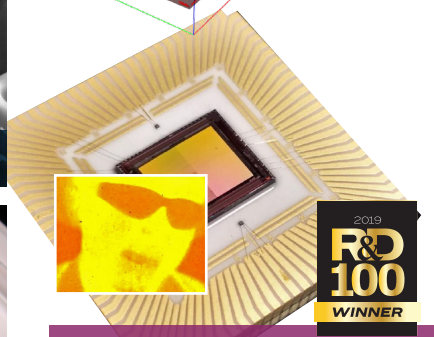
MIRaGE MULTISCALE INVERSE RAPID GROUP-THEORY FOR ENGINEERED METAMATERIALS



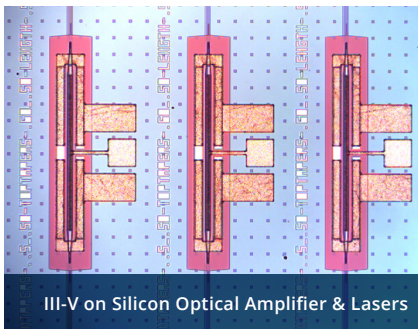
Avalanche Photodiode



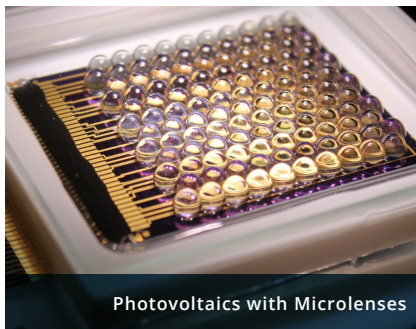
3-D Metamaterials



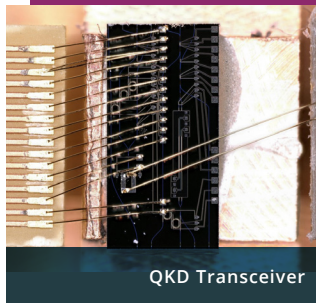
HIGH PERFORMANCE NANOANTENNA-ENABLED DETECTORS



III-V on Silicon Optical Amplifier & Lasers



Photovoltaics with Microlenses



QKD Transceiver

Over 60+ research staff, plus students and postdocs perform ground-breaking photonics research. We provide innovative solutions for national security applications such as optical communications, energy harvesting, infrared imaging, RF, quantum, LIDAR, photovoltaics, & diode lasers.

Learn about Sandia's **National Security Photonics Center** at: sandia.gov/mesa/nspc

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Keyword search "photonics"



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Current Open Photonics Job Postings* (September 2022)

Job ID: 685418 Job Title: Integrated Quantum Photonic Postdoctoral Appointee

Job ID: 685419 Job Title: Postdoctoral Appointee for Heterogeneously Integrated Photonics

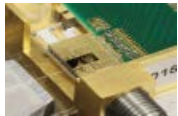
Job ID: 685420 Job Title: Postdoctoral Appointee for Scalable Quantum Photonic Solutions

* New postings will be created regularly as older postings expire. For most recent postings, please go to sandia.gov/careers and search for keywords such as "photonics" or words found in older postings.

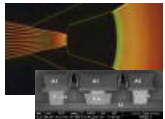
Sandia's National Security Photonics Center

Sandia's National Security Photonics Center serves the nation by developing and delivering leading-edge integrated photonics solutions for our customers and partners in the national security sector. Sandia performs ground-breaking research as well as product delivery and qualification with a focus on technology innovation and high-performance pathfinder solutions. We leverage the broad capabilities within Sandia's Microsystems Engineering, Science, and Applications (MESA) Complex, including our co-located silicon and compound semiconductor fabs, deep R&D expertise, and low-volume manufacturing infrastructure to solve truly difficult problems. Sandia partners with government agencies, private companies, and universities to collaborate on new technologies, provide expertise, deliver low volume solutions, and transfer technology.

Sandia's National Security Photonics Center is composed of >60 photonics experts skilled in device design, modeling, simulation, epitaxy, device fabrication, integration, assembly, and test, in addition to many postdocs and students. Sandia jointly hosts the Center for Integrated Nanotechnologies (CINT), a national user facility devoted to nanotechnologies including nanophotonics and optical nanomaterials.



Compound III-V Photonics The InGaAsP/InP PIC program at Sandia resides within the MESA facility and is presently used for customer-specific photonic R&D, such as optical data sampling and RF-analog signal processing in the optical domain.



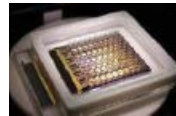
Silicon Photonics Sandia's silicon photonics process is an electro-optical silicon photonic integrated circuit platform built on silicon on insulator (SOI) wafer technology with fully integrated Ge detectors.



Heterogeneous Integration Sandia has unique capabilities in hybrid integration of custom photonic devices and advanced electronic circuits, enabling prototyping of high-performance optoelectronic systems and microsensors.



Biological & Chemical Sensors Sandia's Microsystems effort develops sensors and sensor arrays for biological and chemical detection.



Advanced Packaging Sandia experts have decades of experience with the microsystems packaging process, a key step in successful development of integrated systems.



Failure Analysis, Test, and Reliability Support Sandia experts invent, develop and utilize different tools and techniques for root cause failure analysis. Sandia supports its customers throughout the product life cycle.



Applications Sandia's mission in national security has fostered capabilities and technologies including Optical Interconnect, Photovoltaics, Focal Plane Arrays, Quantum Microsystems, Advanced Sensors, Plasmonics, Metamaterials, and Optical MEMS.

Sandia's National Security Photonics Center (NSPC):

www.sandia.gov/mesa/nspc

The Center for Integrated Nanotechnologies: cint.lanl.gov

Career opportunities for student interns, post-docs and staff:

www.sandia.gov/careers with keyword: **photonics**



Search by Job ID: 685418 or Org: 05265

Job Title: Integrated Quantum Photonic Postdoctoral Appointee<http://www.sandia.gov/careers>**Location:** Albuquerque, NM

Full-Time - Temporary

What Your Job Will Be Like

We are seeking a motivated Postdoctoral Appointee to advance silicon photonic and other integrated photonic technologies for quantum and classical optical signal processing applications with heterogeneous integration, innovative designs, and novel physics phenomena. The postdoc will have opportunities to collaborate with 60+ researchers in [Sandia's National Photonics Center](#), using Sandia's unique [Microsystems and Engineering Sciences Applications \(MESA\) Fabrication Facility](#).

On any given day, you may be called on to:

- Perform ground-breaking scientific research in silicon photonic and other integrated platforms through theoretical analysis, simulation, design, and characterization of novel devices and systems for both classical and quantum applications.
- Implement new concepts in device design, measurement, fabrication, and packaging.
- Build world-first application demonstrations with photonic devices.
- Report research results in top-tier journals and conferences.
- Generate new intellectual property through patent filing as applicable.

Qualifications We Require

- Ph.D. degree in Physics, Electrical Engineering, Optical Engineering, Optical Science, or other related STEM technical areas, conferred within five years prior to employment.
- Experience performing original research, demonstrated through a record of invention, original publications in top-tier journals, and conference papers and presentations
- Demonstrated expertise in photonic design and experimental characterization.
- Experience in using software for device performance simulations using, for example, COMSOL, Matlab/Simulink, FDTD codes etc.
- Familiarity with basic knowledge of semiconductor physics, optical materials, and nonlinear optics.
- Ability to acquire and maintain a DOE L Security Clearance

Qualifications We Desire

- Background in integrated photonics applications such as quantum sensing, networking and computing, or optical communications.
- Experience in the design and test of photonics microsystems: integrated optical circuit with passive and active devices.
- Expertise in nonlinear optics and nano-optomechanics.
- Expertise in fabrication, characterization, and usage of various optical materials.
- Experience with small-scale optical packaging of silicon photonics devices, including co-packaged with electronic chips.
- Strong theoretical background in optical communication, quantum optics and/or quantum computing.
- Background with cryogenic or other ultra-cold testing equipment and methods.
- Ability and desire to work in a team environment and flexibility to work on multiple projects concurrently.

About Our Team

The Photonic and Phononic Microsystems Department develops and matures state of the art photonic and phononic technologies for a variety of national security purposes. Our team of interdisciplinary researchers innovates, develops, and applies novel technologies including silicon photonics, nanophotonics, optomechanics, metamaterials, plasmonics, optical detectors, guided wave optics, phononic and thermoelectric technologies, spanning fundamental research and path-finding engineering solutions. In the last ten years, the Photonic and Phononic Microsystems Department has generated numerous world-firsts, high-impact publications/journal covers and received 70+ patents, multiple R&D 100 awards, and significant DARPA/DOD/DOE funding awards.

Check out [Sandia's National Photonics Center](#)

Position Information

This postdoctoral position is a temporary position for up to one year, which may be renewed at Sandia's discretion for up to five additional years. The PhD must have been conferred within five years prior to employment.

Individuals in postdoctoral positions may bid on regular Sandia positions as internal candidates, and in some cases may be converted to regular career positions during their term if warranted by ongoing operational needs, continuing availability of funds, and satisfactory job performance.



Search by Job ID: 685419 or Org: 05265

Job Title: Postdoctoral Appointee for Heterogeneously Integrated Photonics<http://www.sandia.gov/careers>**Location:** Albuquerque, NM

Full-Time - Temporary

What Your Job Will Be Like

We are seeking a motivated postdoctoral appointee to advance silicon photonic and other integrated photonic technologies for quantum, RF, and telecommunications applications with heterogeneous integration, innovative designs, and novel physics phenomena. The postdoc will have opportunities to collaborate with 60+ researcher [Sandia's National Photonics Center](#), using Sandia's unique [Microsystems and Engineering Sciences Applications \(MESA\) Fabrication Facility](#).

On any given day, you may be called on to:

- Perform ground-breaking scientific research in silicon photonic and other integrated platforms through simulation, design, and characterization of novel devices for both classical and quantum applications.
- Implement new concepts in device design, measurement, fabrication, and packaging.
- Build world-first application demonstrations with photonic devices.
- Report research results in top-tier journals and conferences.
- Generate new intellectual property through patent filing as applicable.

Qualifications We Require

- PhD in Physics, Electrical Engineering, Optical Engineering, Optical Science, or other related STEM technical area conferred within five (5) years prior to employment.
- Experience performing original research, demonstrated through a record of invention, original publications in top-tier journals, and conference papers and presentations.
- Demonstrated expertise in photonic design and experimental characterization.
- Experience in using software for device performance simulations using, for example, COMSOL, MATLAB/Simulink, FDTD codes, etc.
- Familiarity with basic knowledge of semiconductor physics, optical materials, laser physics, and nonlinear optics.
- Ability to acquire and maintain a DOE L Security Clearance.

Qualifications We Desire

- Background in integrated photonics applications such as optical networking, computing, or communications.
- Experience in the design and test of photonics microsystems: integrated optical circuit with passive and active devices.
- Expertise in fabrication, characterization, and usage of various optical materials.
- Experience with small-scale optical packaging of silicon photonics devices, including co-packaged with electronic chips.
- Experience in high-speed characterization of devices, testing automation, electrical probe stations, operation of high speed and high frequency test equipment, such as bit error rate test equipment, network analyzers, spectrum analyzers, and high-speed oscilloscopes.
- Strong theoretical background in semiconductor laser physics, optical communications, and computing.
- Background with cryogenic or other ultra-cold testing equipment and methods.
- Ability and desire to work in a team environment and flexibility to work on multiple projects concurrently.

About Our Team

The Photonic and Phononic Microsystems Department develops and matures state of the art photonic and phononic technologies for a variety of national security purposes. Our team of interdisciplinary researchers innovates, develops, and applies novel technologies including silicon photonics, nanophotonics, optomechanics, metamaterials, plasmonics, optical detectors, guided wave optics, phononic and thermoelectric technologies, spanning fundamental research and path-finding engineering solutions. In the last ten years, the Photonic and Phononic Microsystems Department has generated numerous world-firsts, high-impact publications/journal covers and received 70+ patents, multiple R&D 100 awards, and significant DARPA/DOD/DOE funding awards.

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Search by Job ID: 685420 or Org: 05265

Job Title: Postdoctoral Appointee for Scalable Quantum Photonic Solutions<http://www.sandia.gov/careers>**Location:** Albuquerque, NM

Full-Time - Temporary

What Your Job Will Be Like

We are seeking a motivated postdoctoral appointee to advance integrated photonics technologies supporting applications in microwave signal processing, optical atomic clocks, atomic inertial sensors and quantum information, using heterogeneous integration, innovative designs, and novel physics phenomena. The postdoc will have opportunities to collaborate with 60+ researchers in [Sandia's National Photonics Center](#), using Sandia's unique [Microsystems and Engineering Sciences Applications \(MESA\) Fabrication Facility](#).

On any given day, you may be called on to:

- Perform ground-breaking scientific research in broad wavelength integrated photonic platforms through theoretical analysis, simulation, design, and characterization of novel devices and systems for both classical and quantum applications.
- Implement new concepts in device design, measurement, fabrication, and packaging.
- Build world-first application demonstrations with photonic devices.
- Report research results in top-tier journals and conferences.
- Generate new intellectual property through patent filing as applicable.

Qualifications We Require

- PhD in Physics, Electrical Engineering, Optical Engineering, Optical Science, or other related STEM technical area conferred within five (5) years prior to employment.
- Experience performing original research, demonstrated through a record of invention, original publications in top-tier journals, and conference papers and presentations.
- Demonstrated expertise in photonic design and experimental characterization.
- Experience in using software for device performance simulations using, for example, COMSOL, MATLAB/Simulink, FDTD codes etc.
- Familiarity with basic knowledge of semiconductor physics and optical materials.
- Ability to acquire and maintain a DOE L Security Clearance.

Qualifications We Desire

- Experience in the design and test of photonics microsystems: integrated optical circuits with passive and active devices.
- Expertise in fabrication, characterization, and usage of various optical materials such as thin film lithium niobate, aluminum oxide, silicon nitride & tantalum pentoxide.
- Experience with small-scale optical packaging of silicon photonics devices, including co-packaged with electronic chips.
- Strong theoretical background in optical communication, quantum optics and/or quantum information and sensing.
- Background with cryogenic or other ultra-cold testing equipment and methods.
- Ability and desire to work in a team environment and flexibility to work on multiple projects concurrently.

About Our Team

The Photonic and Phononic Microsystems Department develops and matures state of the art photonic and phononic technologies for a variety of national security purposes. Our team of interdisciplinary researchers innovates, develops, and applies novel technologies including silicon photonics, nanophotonics, optomechanics, metamaterials, plasmonics, optical detectors, guided wave optics, phononic and thermoelectric technologies, spanning fundamental research and path-finding engineering solutions. In the last ten years, the Photonic and Phononic Microsystems Department has generated numerous world-firsts, high-impact publications/journal covers and received 70+ patents, multiple R&D 100 awards, and significant DARPA/DOD/DOE funding awards.

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