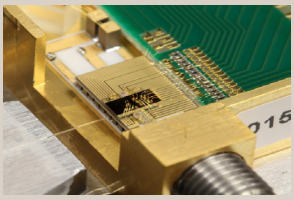
Sandia's Photonics

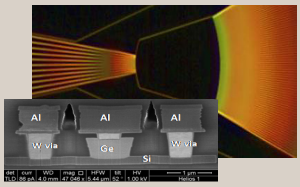
Sandia is positioned to engage in partnerships in silicon and compound semiconductor photonic device or system research, development and prototyping to advance science and engineering in support of solving complex national security problems. Sandia's broad technology base enables expertise in design and fabrication, and facilitates strong collaborative research with universities and industry.

As a multidisciplinary national laboratory and federally funded research and development center (FFRDC), Sandia maintains a diverse, multi-disciplinary research staff working at the forefront of innovation. Sandia maintains world-class research tools and facilities, including the Silicon Photonic Foundry and the III-V Photonic Integrated Circuit (PIC) Lab. Sandia jointly hosts the Center for Integrated Nanotechnologies (CINT), a Department of Energy/Office of Science Nanoscale Science Research Center operating as a national user facility devoted to nanotechnologies including nanophotonics and optical nanomaterials.



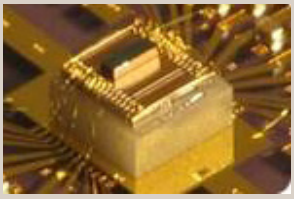
Compound III-V Photonics

The InGaAsP/InP PIC program at Sandia National Labs 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. Demonstrated capability exists to 40 Gb/s.



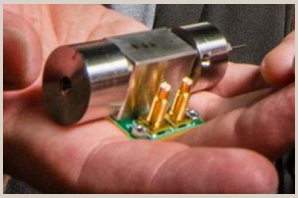
Silicon Photonics

The 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. Collaboration with external partners through MPW is ongoing.



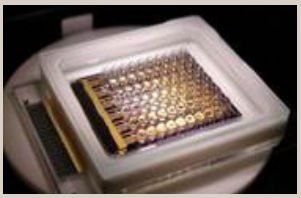
Heterogeneous Integration

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 and Chemical Microsensors

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, Advanced Sensors, Optical MEMS, Quantum Microsystems, Plasmonics, and Metamaterials.

For more information about Sandia please visit the following:

Photonics Capabilities:
http://www.sandia.gov/mstc/nspc/

The Center for Integrated Nanotechnologies:
http://cint.lanl.gov/index.php

Student interns, post-docs and staff career opportunities are available.
Career Opportunities: http://www.sandia.gov/careers/

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