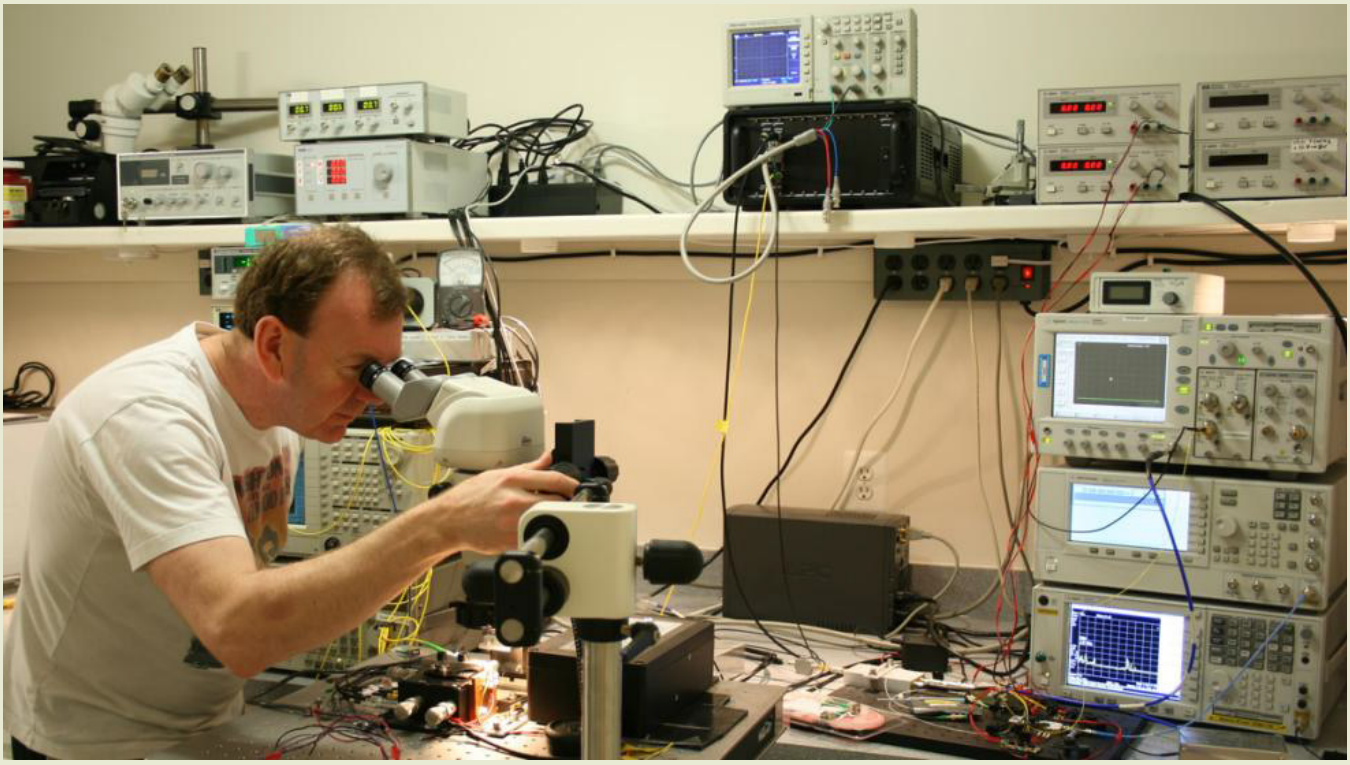
Morton Photonics



Morton Photonics is a full service R&D organization creating value for clients in fields including photonic devices and subsystems for RF photonics, sensing systems, communications systems, optical processing and biomedical applications.

Morton Photonics is developing technologies and products, based on SBIR contracts, to support DoD applications of silicon photonics in phased array systems and novel ultra-low-noise hybrid-integrated laser devices for sensing and RF photonics systems.

Morton Photonics can support your organization in all stages of product development, from early research and development through design and manufacturing. Morton Photonics can provide both technical and management expertise, working in a flexible way to enable clients to succeed.

Photonics R&D: Founded 2002

- Contract R&D
- Government SBIR/STTR Programs
- Product Development
- Consulting Services

www.mortonphotonics.com
443-745-4779

Core competencies

Morton Photonics is working with various government agencies, together with clients, partners and collaborators, to develop R&D programs and products in areas ranging from basic device physics and device design up through sub-system and system level manufacture and testing. Areas of interest include:

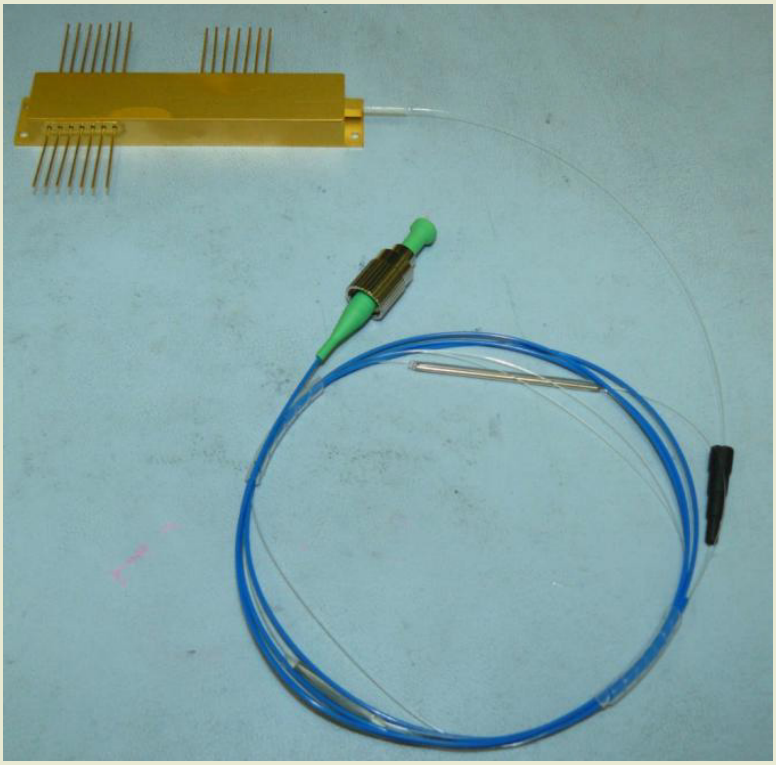
Ultra-Low-Noise Semiconductor Lasers
Silicon Photonics
Nanophotonic Devices
Photonic Integration
RF Photonics
Dynamic Optical Networks

Morton Photonics uses its broad experience from device physics up to system level applications to better understand the requirements for new photonic technologies and how they can be best utilized in next generation systems.

Products

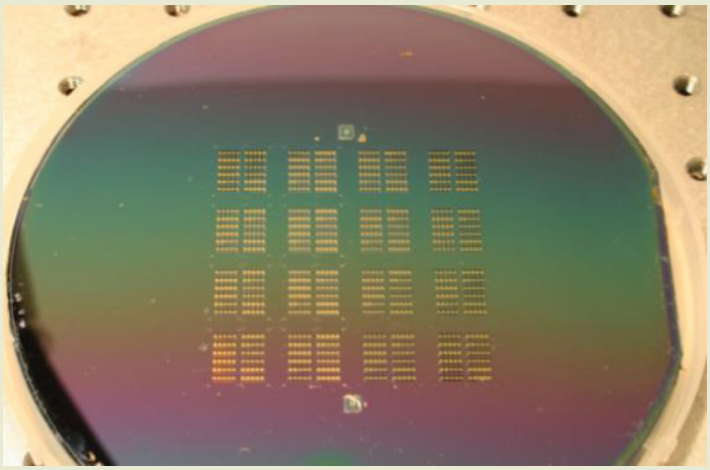
Ultra-Low-Noise Lasers

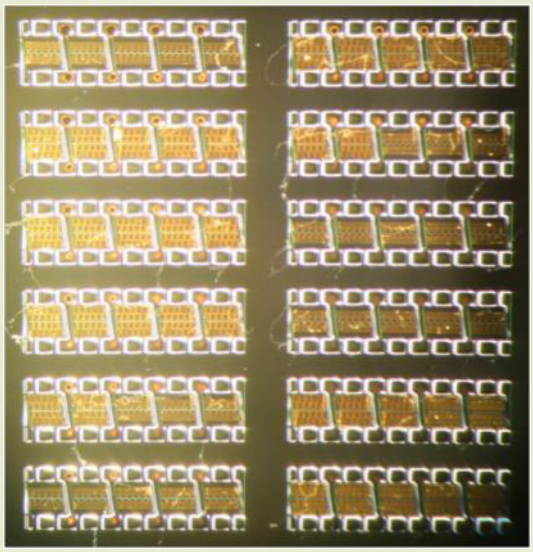
Morton Photonics is developing Ultra-Low-Noise (ULN) Lasers in support of its SBIR Phase II program with the Navy, to be used in submarine based sensing systems. The unique laser design provides a low-cost approach to obtaining the ultra-low-noise performance required for use in DoD sensing systems. The device is based on standard telecom system style sub-components, providing significant cost reduction and high reliability compared to existing ultra-low-noise laser approaches. A prototype ULN Laser is shown in the photograph.



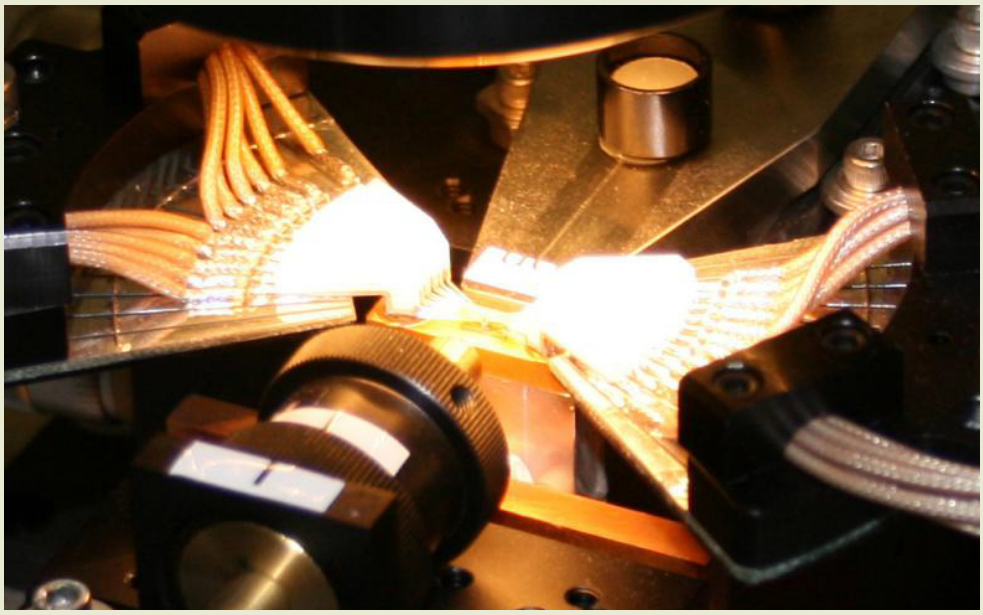
Silicon Photonics

Morton Photonics is developing a number of novel silicon photonics devices in support of ongoing DARPA SBIR and STTR Phase II programs. Examples of devices used for true-time-delay in phased array systems are shown.



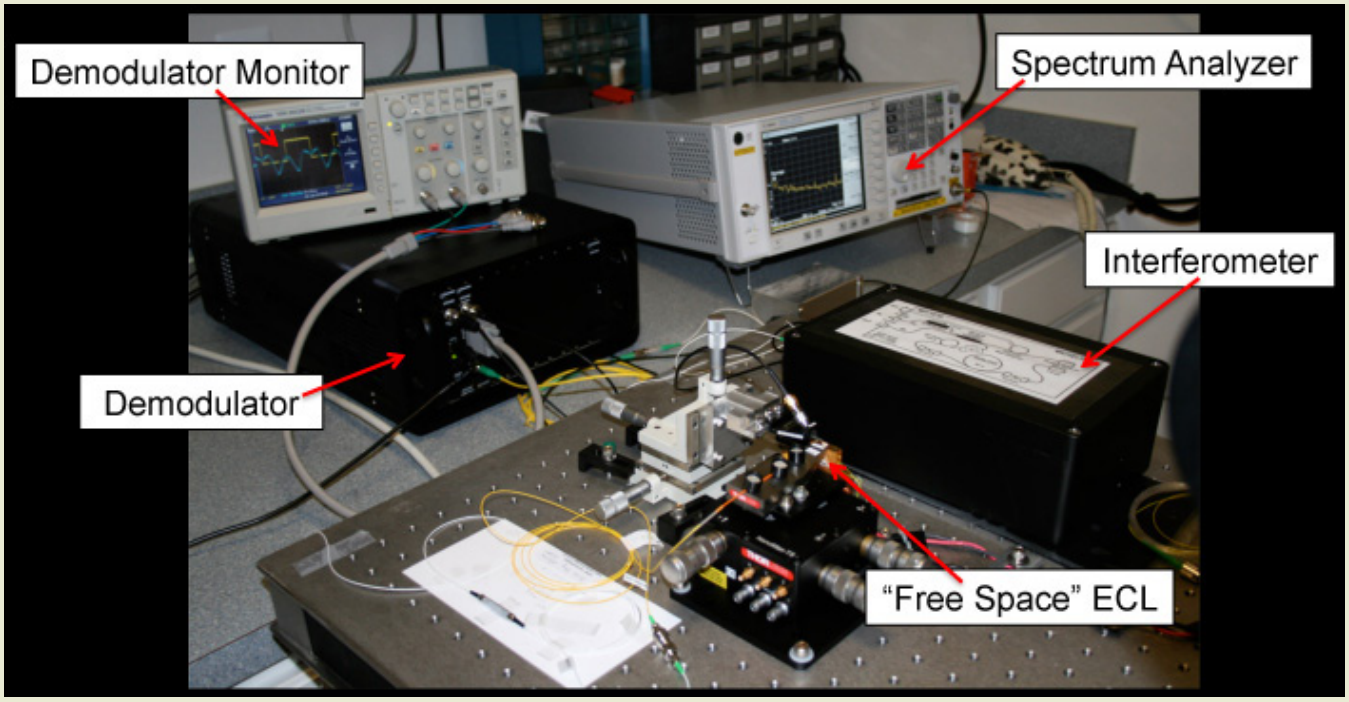


The photograph below shows the testing of a 20 microring resonator based true-time-delay device. This component will form the basis of a time delay module in a phased array system. Additionally, as part of an STTR Phase II program Morton Photonics is developing novel linearized, miniature, silicon modulators to provide the required optical modulation for high SFDR analog links as part of a phased array system.



Facilities/Capabilities

Morton Photonics has the in-house measurement capabilities required for device and sub-system level testing of photonic components. The facility includes an optics lab with standard photonic and electronic measurement capabilities - optical and electrical spectrum and time domain measurements, including a high speed (50 GHz) spectrum analyzer and microwave signal source; used for both R&D and final testing before customer shipments. The optics lab includes a laser phase noise test capability, shown in the photograph below.



Partners

Manufacturing partner: Alphion Corporation, Princeton Junction, NJ

SBIR/STTR partner: Cornell University Nanophotonics Group

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