WHO WE ARE

Omega Optics, Inc. is a research and development company founded in 2001.

We develop science-based solutions to the most challenging problems through private and government-sponsored research.

We are led by the distinguished Dr. Ray Chen who is:

- Award-winning Keys and Joan Curry/Cullen Trust Endowed Chair at The University of Texas at Austin
- Director of the Nanophotonics and Optical Interconnects Research Lab at UT-Austin
- Director of multiple AFRL MURI-Centers for Silicon Nanomembrane Photonics Technologies

OUR TECHNOLOGIES

With nearly 20 U.S. patents/applications in-hand, our expertise broadly covers:

- Lab-on-chip nanophotonic chemical and biological sensors;
- Silicon and polymer based photonic and optoelectronic devices;
- Flexible/printed electronics and photonics;
- Photonic and microwave phased array antennas; and
- Photonic EM-wave sensors

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OMEGA OPTICS

We Deliver Innovation

Nanophotonics Breakthrough to Drive Handheld Gas Sensors

Omega Optics, a leader in nanophotonics R&D, is developing novel technology that will revolutionize the world of "lab-on-chip" (LOC) optical absorption spectroscopy.

Our most recent achievements and innovations in monolithic integration of light sources, detectors and "slow light" photonic transducers enable **miniaturization and higher detection sensitivity** by enhancing the effective optical path lengths. With these breakthroughs, we are engineering a platform technology that requires NO consumables. Our open sensor platform provides highly sensitive, portable and cost-effective LOC solutions for molecular absorption spectroscopy – from visible- to mid-infrared – that will soon disrupt the trace gas and explosives detection markets.

Potential Applications

Our patented (and patent-pending) technologies can power highly-sensitive handheld (or bench-top) devices for LOC absorption spectroscopy including:

- Detection of greenhouse gases (CO, CO_2, CH_4, NH_3, etc.)
- Detection of explosives and narcotics (TNT, DNT, DMMP, TEP, etc.)
- Personalized exposure monitoring applications in healthcare (VOCs)
- Inline combustion process monitoring
- Crowd sourced pollution mapping

Prototype of Handheld Trace Gas & Explosives Sensor

See Video Here:
bit.ly/OOGasSensor

Technical Advantages

- Our proprietary LOC absorption spectroscopy design detects any toxic gas or vapor via its characteristic near-IR/mid-IR absorption signatures
- Simple chip integrated "slow light enhanced" photonic devices eliminate costly and bulky multi-pass gas cells in other platforms
- No consumables required
- Monolithically aligned chip based device eliminates cumbersome and fragile optical alignment and optical components in heterogeneously integrated systems
- In-situ, real-time results in a rugged, handheld, easy to use device with continuous remote monitoring

Expected Sensitivity of Selected Gases – ***Handheld*** Device

Gas	Sensitivity
CH_4	2 ppb
CO	<1 ppb
CO_2	330 ppt
DMMP	70 ppt
TEP	1 ppm
TNT	50 ppt
Others	ppm to ppt

Contact Us

Omega Optics seeks partnerships to help bring our patented technologies to market. Please contact us to discuss ways we can work together.