

WHO WE ARE

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

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

We are led by 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 the multiple AFRL MURI-Centers for Silicon Nanomembrane Photonic Technology

OUR TECHNOLOGY

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 phase array antennas; and
- Photonic EM-Wave sensor

Contact us

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OMEGA
OPTICS

We Deliver Innovation

Monolithically Integrated Lab-on-chip Absorption Spectroscopy for Portable Gas Sensing Applications

Omega Optics Inc. introduce a portable lab-on-chip (LOC) absorption spectrometric solution for in-situ remote gas sensing applications featuring high sensitivity and superior selectivity .

Monolithic integration of light sources and detectors with an optically transparent and slow light assisted photonics sensing waveguide in III-V material platform can replace the conventional system those are bulky and alignment sensitive. Our portable sensor platform can be mounted on the arial platforms like UAVs and offers cost effective and reliable spectroscopic solution in Visible to Mid-IR range of spectrum – that will be reshaping gas-sensing for future needs.

Potential Applications

Our patented (and patent-pending) technologies can power highly sensitive and selective portable system for in-situ analysis through LOC absorption spectroscopy including:

- Detection of green house gases (CO, CO₂, CH₄, NH₃, etc.)
- Detection of chemical warfare agent, explosives and narcotics
- Personalized exposure monitoring applications in healthcare like hazardous air pollutant (HAPs) and volatile organic compounds (VOCs)
- Monitoring of chemical emission thorough oil & storage unit, municipal solid waste, aerosol monitoring etc.

Technical Advantages

- Monolithic LOC system eliminates cumbersome, and fragile optical alignment
- On-chip slow-light assisted photonic waveguide along with QCL and QCD can replace bulky multi-pass gas cells used in conventional optical sensing system
- Highly miniaturized on-chip components make it suitable for in-situ monitoring which can be mounted on a portable platform and operated from a remote location for continuous and real-time monitoring
- Inclusion of AI/ML functionality will further enhance system's capability with several folds

Partnership with us

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

