DR. DANIEL B. OH

Dr. Oh founded Searchlight Sensors, Inc., in June,2008, with a goal of researching and developing innovative optical sensing technologies and commercializing them through in-house manufacturing, sales and marketing. Dr. Oh has over 20 years of experience in diode laser spectroscopy R&D and 7 years of executive experience in commercializing diode laser-based gas sensing technologies to commercial products. Dr. Oh has been one of the early researchers involved in research and development of semiconductor laser-based gas sensing technique, especially near-infrared telecom lasers, VCSEL diode laser, and external cavity diode laser. He demonstrated diode laser-based tunable UV laser and detection of combustion radicals (OH and CH) in flames. One US patent (#6,683,895) was granted on developing "wavelength-agile external cavity diode laser" and its spectroscopic application. His pending patent is related to low cost optical sensor development, and several more related patents are in preparation.

Education and Training :

1987 - 1990	Postdoctoral Researcher, USC Department of Chemistry
1981 - 1988	Ph.D. in Chemistry, UC Berkeley
1977 - 1981	B.S. in Chemistry, High Honor, California State University Los Angeles

Research and Professional Experience:

2008 – Now President, Searchlight Sensors, Inc.

- Formed Searchlight Sensor to develop and commercialize new and innovative laser-based optical sensors for process monitoring, environmental monitoring, and hazardous chemicals monitoring.

2002 – 2008 Director of Technology Development, Southwest Sciences, Inc.

- Managed commercialization & technology transfer process of Southwest Sciences' in-house research projects
- Developed and executed licensing agreements with partner manufacturing companies, resulting in 2 royalty-bearing licenses.
- Initiated mid-infrared QC & IC laser-based gas sensing projects at Southwest Sciences, and collaborated with Claire Gmachl at Princeton, Rui Yang at JPL, and Jerry Meyer at NRL.

2000 – 2002 Director of R&D, SpectraSensors, Inc.

- Led R&D activities at a start-up company developing diode laser-based moisture sensors for natural gas pipeline industry
- Managed a program to develop diode laser-based moisture sensor for commercial aircrafts and prepared for FAA Certification.

1990 – 2000 Principal Research Scientist, Southwest Sciences, Inc.

- Developed diode laser-based tunable UV light sources
- Developed high sensitivity detection of combustion radicals in flames, plasma etching radicals and epitaxial atomic beams in MBE chambers.
- Developed novel external diode laser cavity for wide tuning

Patents:

1 US Patent (#6,683,895) "Wavelength Agile External Cavity Diode Laser"
1 Pending US Patent (Low Cost Optical Sensor Platform)

Publications:

24 journal articles (includes 2 book chapters).

Selected Publications:

- "High Sensitivity Detection of CH Radicals in Flames Using a Diode Laser-based Near-UV Light Source," K. A. Peterson and D. B. Oh, Opt. Lett. **24**, 667 (1999).

- "Frequency Modulation Multiplexing for Simultaneous Detection of Multiple Gases by Use of Wavelength Modulation Spectroscopy with Diode Lasers," D. B. Oh, M. E. Paige, and D. S. Bomse, Appl. Opt. **37**, 2499 (1998).

- "Time-Resolved Wavelength Modulation Spectroscopy Measurements of HO_2 Kinetics," C. A. Taatjes and D. B. Oh, Appl. Opt. **36**, 5817 (1997).

- "Measurement of Nitric Oxide With an Antimonide Diode Laser," D. B. Oh and A. C. Stanton, Appl. Opt. **36**, 3294 (1997).

- "Trace Gas Detection Using Vertical Cavity Surface Emitting Lasers," D. C. Hovde, J. A. Silver, D. J. Kane, M. E. Paige, D. S. Bomse, D. B. Oh, and A. C. Stanton, Optical Remote Sensing for Environmental and Process Monitoring, Air and Waste Management Association, 296 (1996).

- "Wavelength Modulation Detection of Acetylene with a Near-Infrared External Cavity Diode Laser," D. B. Oh and D. C. Hovde, Appl. Opt. **34**, 7002 (1995).

- "Diode-laser-based sum-frequency generation of tunable wavelength-modulated UV light for OH radical detection," D. B. Oh, Opt. Lett. **20** , 101 (1995).

- "In Situ Diode Laser Absorption Measurements of Plasma Species in a GEC Reference Cell Reactor," D. B. Oh, A. C. Stanton, H. M. Anderson and M. P. Splichal, J. Vac. Sci. Technol. **B 13**, 954 (1995).

- "Measurement of Atmospheric Species by Mid-Infrared and Near-Infrared Tunable Diode Laser Absorption," A. C. Stanton, D. S. Bomse, J. A. Silver, D. C. Hovde, and D. B. Oh, in *Monitoring of Gaseous Pollutants by Tunable Diode Lasers*, Proceedings of the International Symposium held in Freiburg, Germany, 17-18 October 1991, R. Grisar, H. Boettner, M. Tacke, and G. Restelli, eds. (Kluwer Academic Publishers, Dordrecht, The Netherlands, 1992), pp. 31-40.

Synergistics Activities:

Members: OSA, SPIE, AGU

2008, 2010 Organizing Committee of LACSEA (Laser Applications to Chemical, Security and Environmental Analysis), Topical Meeting of OSA