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Experience | **NRC Senior Research Associate, Ames Associate and consultant through BAERI at NASA Ames Research Center (2001 - PRESENT).**

Measured atmospheric aerosol properties using optical cavity ring-down instrument.

Fulfilled a project on optical diagnostics (emission- and diode laser-based absorption) of inductively coupled plasma (ICP) aimed on applications in nano-/micro-electronics fabrication and on diode-laser sensors for planetary exploration.

Developed a plasma-based technique for biological sterilization and decontamination of instrumentation surfaces under Mars-simulating conditions.

Submitted several proposals for further research. Served as a manuscripts reviewer.

| **Post-Doctoral Research Associate at the University of Massachusetts at Amherst (1993 - 2001).**

Accomplished a project on optical diagnostics of enclosed inductively coupled plasma designed for trace analysis of reactive specialty gases used in the semiconductor industry.

Elucidated novel effects in a halogen-gas ICP and significantly improved its detection capability. Discovered new spectral lines of several elements (Cl, As, P). Designed and tested an interface between analytical ICP and gas chromatography GC-ICP-MS.

Supervised MS and PhD students. Instructed microwave sample preparation courses.

| **Group Lead/Sr. Scientist for the project on plasma-laser analysis of ultra high-purity gases at the St. Petersburg State University (1991 - 1993).**

Managed multiple projects on development of laser-induced gas breakdown spectroscopic and gas-chromatographic analyzers for bulk gases used in the semiconductor industry.

Utilized expertise in theory, design, and applications of the trace analysis of purity gases.

Supervised scientists, engineers, doctoral- and master-level students.

| **Researcher in the Laboratory of Spectral Analysis at the St. Petersburg (Leningrad) State University (1980 - 1991).**

Development and applications of both optical and chromatographic methods for analysis of gases, vapors, air, semiconductors, alloys, environmental and geological samples.

Plasma sputtering for trace analysis of silicon. Laser ablation-based analysis of chips.

| **Main Database manager at the Russian Center for Laser Physics at the St. Petersburg State University (1992).**

Developed and administered the concept, acquisition and classification of information for the country's major database on laser-based techniques and technologies.

Education University of Massachusetts: Postdoctorate; University of Oslo: Norwegian Government Scholarship Holder; St. Petersburg (Leningrad) State University: **Ph.D.** in optics and analytical chemistry; **M.S.** in plasma physics.

Awards National Research Council research award at NASA; Norwegian Government Scholarship award; Personal grant from SPIE (international optical society). US International Science Foundation grant for long-term research in Russia.

Publications More than 90 publications and presentations, including patents on analytical methods.