RESUME

SHENG WU

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SUMMARY:

1 year teaching experience. 7 years research experience, >2 years of entrepreneur experience. Scientific contributions to the laser spectroscopy engineering including 6 publications in international journals and 6 in international technical conferences. 1 US Patent (US Pat# 5,812,305) and 1 final patent filing(pending).

EDUCATION:

- **Ph.D.** Department of Chemistry, California Institute of Technology, Pasadena, California, From Sep. 1992 to June, 1999.
- **M.S.** Department of Environmental Engineering Science, California Institute of Technology, Pasadena, California, From Sep. 1992 to Jun. 1994.
- **B.S.** Department of Chemistry, Beijing University, Beijing, P.R. of China, From Sep. 1988 to Jul.1992
- **B.S.** Department of Physics, Beijing University, Beijing, P.R. of China, From Sep. 1988 to Jul.1992

TECHNICAL SKILLS:

- **Experimental skills:**

Laser design and operation, various spectroscopic instruments and electronics. Proficiency in mechanical design (CAD) and CNC machining, mini electronic circuit. Experience with optical fiber components and their designs.

- **Computer skills:**

C, C++, Fortran, Assembly Language, BASIC, PASCAL, VISUAL BASIC, VISUAL C, JAVA Script, ACAD, Adobe PhotoShop, etc.

Hardware: extensive experience with 8501, Z80, etc.

WORKING

Research Staff Scientist

EXPERIENCE:

June. 1999 - present Department of Geological and Planetary Sciences, California Institute of Technology, Pasadena, California

Duties:

Funded by NSF and external corporation, develop OPO system and FT CCD spectrometer.

Research Assistant

July. 1992–June. 1999 Department of Chemistry, California Institute of Technology, Pasadena, California

Duties:

Funded by DARPA, develop advanced laser spectroscopy techniques for environmental pollutant/chemical detection and monitoring.

Achievements:

With the result of 6 publications in International Journals and 6 conference papers. US Patent office issued a patent for the laser system that we developed. Three local companies have applied our research to their research and products for environmental monitoring and detection. I just filed another final patent in January, 2000.

Teaching Assistant

Sep. 1992–Jun. 1993 Department of Chemistry, California Institute of Technology, Pasadena, California

Duties:

Preparation of problem set, teaching undergraduates about Quantum Physics

Achievements:

Received grade A from students' review. Instructed 50 students in 3 quarters.

Research Assistant

Jan. 1992–June 1992 Institute of Physics, Chinese Academy of Sciences, BeiJing, China

Duties:

Develop computer program and perform calculation on heat of formation for metal alloys.

Achievements:

Ample results for the heat of formation of rare earth metal alloys. With 1 paper published in an international journal (Journal of Alloys and Compounds).

Computer Hardware Specialist

July. 1991-Dec. 1991 DAHENG Information Systems, BeiJing, P.R. China

Duties:

Develop product manuals, and standards for computer systems. Coordinate between Sales and manufacturing. Customer Service.

Founder, Product Manager

July. 1997-Present U-Oplaz Technologies, Inc. Chatsworth, CA 91030 (www.U-oplaz.com)

Duties:

Develop OPO lasers, ultra-fast laser harmonic generators and other laser accessories based on our patented technologies. Manage production for these products. Develop manufacturing processes for fiber optics (attenuators, couplers) and motion control systems etc, for our affiliate company.

Achievements:

Sales increases from 0 to over half a million dollars. We won the Finalist of 1999 Commercial Technology Achievement Awards Sponsored by Laser Focus World.

RESEARCH EXPERIENCE:

Research Assistant

Sep. 1992–Present Department of Chemistry, California Institute of Technology, Pasadena, California

- **Projects:**

1. Ultra-fast dynamics study on molecular dissociation
2. Research and development of techniques for detection of biochemical pollutants.
3. Research and development of high resolution, broadly tunable lasers.
4. Experimental studies of Metal-H2O and Metal-NH3 clusters with laser spectroscopy.

Research Assistant

Jan. 1992–June 1992 Institute of Physics, Chinese Academy of Sciences, BeiJing, China

- **Projects:**

Computational studies of the heat of formation of rare earth metal alloys.

TEACHING EXPERIENCE:

Sep. 1992–Jun. 1993 Department of Chemistry, California Institute of Technology, Pasadena, California

Teaching Assistant

- **Projects:**

Lecturing and grading of Quantum Physics for a group of 50 graduate students.

PATENT

US Patent Number 5,812,305, Date of Patent: Sep.22, 1998

Optical Parametric Oscillator Cavity Design

Provisional filing, Date: January 14, 1999.

Muilticrystal Harmonic Generator

AWARDS

Finalist of 1999 Commercial Technology Achievement Awards

Sponsored by ***Laser Focus World.***

SELECTED PUBLICATIONS:

1. Enthalpies of formation of rare earth-3d metal alloys and intermetallic compounds, Journal of Alloys and Compounds, **202** (1993) 101-106
2. Simple, high-performance type II β-BaB2O4 optical parametric oscillator, Applied Optics, **36** (1997), 5898-5901
3. Nonlinear Optical Crystals Improve Laser's Flexibility, Invited Feature Article, May, 1998, Volume **32**, Issue 5. Photonics Spectra, 138-144
4. A Nanosecond Optical Parametric Generator/Amplifier Seeded by an External Cavity Diode Laser, Optics Communications, Vol.159, 74-79, 1999.
5. "Photoionization Spectroscopy of the Clusters of Potassium with H2O, NH3, and C6H6", Sheng Wu, Zulfikar Morbi, & Geoffrey A. Blake, J. Chem. Phys., submitted.
6. "Multicrystal harmonic generator compensate for thermally induced phase mismatch", Accepted for publication in January's (2000) Issue of Optics Communications.

7. "Nonlinear absorption and thermal distribution inside nonlinear optical crystals during deep UV harmonic generation", Sheng Wu, Geoffrey A. Blake et. al. in preparation for the J. Opt. Soc. A. B.

8. "A OPO with low threshold by cylindrically focusing the pump beam", Sheng Wu, Geoffrey A. Blake et.al. in preparation for Laser Physics, 2000.

CONFERENCE PRESENTATIONS:

1. An OPO ring cavity with no coatings, Conference on Lasers and Electro-Optics, Vol.9, 1996 OSA Technical Digest Series (Optical Society of America, Washington, D.C., 1996), p. 370-371
2. Low-threshold BBO OPO with cylindrical focusing, Proceedings of SPIE Volume 3263, #17
3. An efficient compound OPO cavity with narrow bandwidth, Proceedings of SPIE Volume 3263, #19
4. An Simple *ns* Optical Parametric Generator seeded by an External Cavity Diode Laser, IV Conference on Spectroscopy, Pasadena, CA, 1998
5. Two Photon Absorption in BBO crystal during UV harmonic generation. Accepted by Photonics West 2000, 3928-28
6. Multi-crystal Design Compensate for Themally Induced Phase-Mismatch in BBO. Accepted by Photonics West 2000, 3928-29.