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N I S H A N T B H A T A M B R E K A R

## EDUCATION

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September 2000 - present **University of Washington, Seattle,WA**

*PhD Candidate in Chemistry and Nanotechnology*

- Microfabrication of waveguide based organic electro-optic (EO) polymer devices like Mach-Zehnder interferometer, Couple Ring Optical Waveguide (CROW).
- Achieving very low drive voltage in organic EO devices using a novel DC biased method in Push-Pull configuration
- Attenuated Total Reflection (ATR) technique to measure electro-optic coefficient in the this thin slab waveguides
- PhD expected in Fall 2005
- Awarded Suman Ramesh Tulsiani Charitabel Trust Scholarship for studying abroad for 5 years

August 1998 - April 2000 **Indian Institute of Technology, Powai, Bomaby,India**

*Master of Science in Chemistry*

- Studied "Electrostatic correlates of Amino Acid roles in proteins" under Dr. Susheel Durani
- Received a prize from Chemistry department for being the first in Organic Chemistry division for year 1999-2000
- Received Shri Prakash Krishnan Award for being the most outstanding student in the Chemistry (5 year Integrated MSc.)
- Received Prof. A.B. Biswas Memorial Prize for the most outstanding student in the Chemistry (5 year Integrated MSc.)
- Awarded Institute Silver Medal for securing the First Rank in the entire Chemistry Batch of 2000

August 1995 - April 1998 **Indian Institute of Technology, Powai, Bombay, India**

*Bachelor of Science in Chemistry*

- Seminar in the "Study of organic Selectrides for selective reduction in organic synthesis" under Dr. K.D. Deodhar

## PROFESSIONAL EXPERIENCE

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April 2001 - present **University of Washington, Seattle,WA**

*Research Scientist*

- Active member of research teams in Chemistry and Applied Physics Laboratory
- Duties include: working as an individual and team member towards research goal; publishing and presenting findings to the academic community; Project and Lab management including training

September 2000 - April 2001

University of Washington, Seattle, WA

*Teaching Assistant*

- Duties included: Grading and tutoring of introductory chemistry courses, teaching an undergraduate lab for between 15 and 30 students

Summers of 1997 -98

Indian Institute of Technology, India

*Organic Chemist*

- Worked as an individual as well as a team member in organic synthetic laboratory under Prof. K.D. Deodhar and Prof. S. Kotha
- Duties included: Maintenance of the organic lab equipment, coordinating activities with the senior research students of a small synthetic team within a large project.

#### PROFESSIONAL MEMBERSHIPS

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- American Chemical Society – member since 2000
- Optical Society of America- member since 2001

#### PUBLICATIONS

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- “Achieving a fractional half-wave voltage of Mach-Zehnder modulators using a new push-pull DC biased method”; Nishant Prakash Bhatambrekar, Anna Pyajt, Jingdong Luo, Larry Dalton, Alex K-Y Jen, Antao Chen; *Optics Engineering in press*
- “Estimating third order nonlinearity in EO polymer using DC biased technique”; Nishant Prakash Bhatambrekar, Anna Pyajt, Jingdong Luo, Larry Dalton, Alex K-Y Jen, Antao Chen; *Applied Physics Letters in press*
- “Electro-optic characterization of NLO polymers in a slab waveguide using the ATR technique”; Nishant Bhatambrekar, Antao Chen, Larry Dalton and Alex Jen; *Polymeric Materials: Science and Engineering*, **2004**, 91, 687-688.
- “Highly Ordered Pseudo-Discotic Chromophore Systems for Electro-Optic Materials and Devices”; Nishant Bhatambrekar, Scott Hammond, Jessica Sinness, Olivier Clot, Harry Rommel, Antao Chen, Bruce Robinson, Alex K-Y. Jen, Larry Dalton; 2004 Fall conference of Material Research Society, Boston, MA.
- “Synthesis of Dendritic NLO Chromophores for the Improvement of Order in Electro-optics”; Jessica Sinness, Olivier Clot, Nishant Bhatambrekar, Scott R. Hammond, Harrison L. Rommel, Bruce Robinson, Alex K-Y. Jen, Larry Dalton; 2004 Fall conference of Material Research Society, Boston, MA.
- “piezoelectric effect study of the electro-optic polymers in a slab waveguide using the ATR technique”; Nishant Bhatambrekar, Antao Chen, Larry Dalton and Alex Jen; *PHOTONICS 2004: 7<sup>th</sup> international conference on Optoelectronics, Fiber Optics and Photonics*, Kochi, India.
- “A biased push-pull technique to achieve fractional volt half-wave voltage of Mach-Zehnder modulators”; Nishant Prakash Bhatambrekar, Anna Pyajt, Jingdong Luo, Larry Dalton, Alex K-Y Jen, Antao Chen; *Integrated Optoelectronic Devices, Photonic West 2005 conference*, San Jose, CA.

- L. Dalton, B. H. Robinson, A. Jen, P. Ried, E. B., S.-H. Jang, J. Luo, S. Liu, Y. Liao, K. Firestone, N. Bhatambrekar, D. Bale, M. Haller, S. Bhattacharjee, J. Schendel, P. Sullivan, S. Hammond, N. Buker, F. Cady, A. Chen, and W. Steier, *SPIE* (2004). (in press)
- “Feasibility study: integration of electro-optic polymer waveguide device with MOS circuitry on silicon”; Susan Soggs, Haishan Sun, Antao Chen, Kian Kaviani, Nishant Bhatambrekar, Anna Pyajt, Jingdong Liu, Larry Dalton, Alex Jen, Babak Parviz, *SPIE Proceedings of Photonics West 2005 in press*.
- “Electrostatic Correlates of Amino Acid roles in Protein and DNA Complexes”; Nishant Bhatambrekar; Master’s thesis, defended April 2000.

## **PATENTS**

- “A DC biased Push-Pull technique for Mach-Zehnder modulators”, submitted to the Office of Technology Transfer Invention Licensing, University of Washington, 2005.