

# SEONG-SOO KIM

## INDUSTRIAL & EDUCATIONAL BACKGROUNDS

<b>Georgia Institute of Technology</b> ( 2004 ~ now )	Research Scientist
<b>Lightbit Corp.</b> Silicon Valley, USA ( 2001 ~ 2003 )	Chip Scientist
<b>Northwestern University,</b> ( 1993 ~ 2001 )	Ph.D. in Physics & Astronomy
<b>Republic of Korea Air Force,</b> ( 1990 ~ 1993 )	Military Service
<b>INHA University,</b> South Korea ( 1986 ~ 1990 )	B.S. in Physics

## RESEARCH & INDUSTRIAL WORKING EXPERIENCES

### Research at Georgia Tech

1. Modal phase matching optical waveguide design and its testing for 2<sup>nd</sup> harmonic generation
2. III-Nitride materials (GaN/AlGaIn) growing by MBE for optical waveguide application optical index control & quantum well design
3. organic optoelectronics – holographic application of photorefractive organic materials
4. Project management of epitaxial growth of LiNbO<sub>3</sub> on SiC and its optical application

### R/D at Lightbit Corp.

R/D on Optical Band Converter, Optical Dispersion Compensator, and Blue Laser based on periodically poled Congruent LiNbO<sub>3</sub> & Mg:LiNbO<sub>3</sub> waveguide devices

### Research at Northwestern

1. High Speed Electrooptic Modulators based on
  - i. Si optical waveguide ( Simox wafer ) with Self Assembled Chromopher
  - ii. epitaxial BaTiO<sub>3</sub> on MgO
  - iii. Quasi-thin film LiNbO<sub>3</sub> ( Smart-cut )
2. Optical loss compensating BaTiO<sub>3</sub> ridge waveguide by Erbium codoping during MOCVD growth
3. pure single mode III-V semiconductor Laser with passive microring as a wavelength selector ( waveguide design and characterization )
4. effect of surfactants ( Bi ) in InGaAs/GaAs heterostructures to prevent In segregation

## SELECTED PUBLICATION LISTS

- **InGaAsP-InP nanoscale waveguide-coupled microring lasers with submilliampere threshold current using Cl<sub>2</sub>-N<sub>2</sub>-based high-density plasma etching, IEEE Journal of Quantum Electronics, Vol. 41, pp. 351 – 356, 2005**
- **Surface-crack-free reverse proton exchanged waveguides, Provisional US Patent pending, Dec. 15, 2003**
- **Single-mode lasing operation using a microring resonator as a wavelength selector, Journal of Quantum Electronics, Vol. 38, pp 270 – 273, 2002**
- **Thin Film BaTiO<sub>3</sub> Electrooptic Modulator and its Dynamic Response, Proceedings of the Integrated Photonics Research Conference, 2001**

- **Polymer waveguide useful over a very wide wavelength range from the ultraviolet to infrared, *Applied Physics Letters*, vol. 77, pp. 2961-2963, 2000**
- **Guided wave absorption and fluorescence in epitaxial Er:BaTiO<sub>3</sub> on MgO, *Thin Solid Films* 365, pp.126-128, 2000**
- **Growth of In<sub>x</sub>Ga<sub>1-x</sub>As/GaAs heterostructures using Bi as a surfactant, *Journal of Vacuum Science and Technology B*, vol. 18, pp1232-1236, 2000**