

## CURRICULUM VITA

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#### EDUCATION

1995 Ph.D. in Material Physics, Albert-Ludwig-University and Optical Department of Fraunhofer Institute, Freiburg, Germany.

1987 M.A. in Electrical Engineering, Jilin University, Changchun, China.

#### EXPERIENCE

- 2003 to present Associate Professor, School of Electrical and Computer Engineering, (ECE) The University of Oklahoma (**OU**).
- 1997 to 2003 Assistant Professor, ECE (**OU**).
- 1995 to 1997 Research Associate at Institute of Quantum Electronics, Swiss Federal Institute of Technology (**ETH**)
- 1992 to 1995 Visiting Scholar at Fraunhofer Institute of Physical Measurement Techniques, Germany (**FhG**), while working towards a Ph.D.
- 1987 to 1992 Research Staff, Changchun Institute of Physics, Chinese Academy of Science

#### PUBLICATIONS

1. F. Zhao, X. Lv, A. Majumdar and Z. Shi, "Influence of mounting on continuous-wave photoluminescence from mid-infrared PbSrSe/PbSe multiple quantum-wells", *Appl. Phys. Lett.*, **84**, 1251(2004).
2. A. Majumdar, H. Z. Xu, F. Zhao, J. C. Keay, L. Jayasinghe, S. Khosravani, X. Lu, V. Kelkar, and Z. Shi, "Bandgap energies and refractive indices of  $Pb_{1-x}Sr_xSe$ ", *J. Appl. Phys.*, **95**, 939(2004)
3. F. Zhao, H. Wu, A. Majumdar and Z. Shi, "Continuous wave optically pumped lead-salt mid-infrared quantum-well vertical-cavity surface-emitting lasers", *Appl. Phys. Lett.*, **83**, 5129 (2003).
4. H. Z. Xu, F. Zhao, A. Majumdar and Z. Shi, "High power mid-infrared lasing from optically pumped vertical-cavity surface-emitting PbSe/PbSrSe multiple quantum well lasers operating at 325K", *Electron. Lett.* **39**, 661(2003).
5. A. Majumdar, H. Xu, S. Khosravani, F. Zhao, and Z. Shi, "High power light emission of IV-VI lead salt mqw structure grown by mbe on  $\langle 111 \rangle$  BaF<sub>2</sub> substrate", *Appl. Phys. Lett.*, **82**, 493(2003)
6. H. Wu, F. Zhao, L. Jayasinghe, and Z. Shi, 'Molecular beam epitaxy of IV-VI mid-infrared vertical cavity surface-emitting quantum well laser structures', *J. Vac. Sci. Technol. B.* **20**(4), 1356(2002).
7. H. Z. Xu and Z. Shi, "Strong Wave-Vector Filtering and Nearly 100% Spin-Polarization Through Resonant Tunneling Anti-Symmetrical Magnetic Structure", *Appl. Phys. Lett.*, **81**, 691 (2002).

8. F. Zhao, H. Wu, L. Jayasinghe and Z. Shi, "Above-Room-Temperature Optically Pumped 4.12  $\mu\text{m}$  Mid-Infrared Vertical-Cavity Surface-Emitting Lasers", *Appl. Phys. Lett.*, **80**, 1129 (2002).
9. H. Wu, N. Dai, P. J. McCann and Z. Shi, and M. Johnson, "Unambiguous Observation of Subband Transitions From Longitudinal Valley and Oblique Valleys in IV-VI Multiple Quantum Wells", *Appl. Phys. Lett.*, **78**, 2199 (2001).
10. C. L. Felix, W. W. Bewley, I. Vurgaftman, J. R. Lindle, and J. R. Meyer, H. Z. Wu, G. Xu, S. Khosravani, and Z. Shi "Low-Threshold Optically-Pumped  $\lambda=4.4\mu\text{m}$  Vertical-Cavity Surface-Emitting Laser with PbSe Quantum Well Active Region", *Appl. Phys. Lett.*, **78**, 3771 (2001).
11. S. Khosravani and Z. Shi, "Theoretical Investigation of High Temperature IV-VI Compound CW Mid-IR Vertical-Cavity Surface-Emitting Lasers", *Appl. Phys. Lett.*, **78**, 139 (2001).
12. Z. Shi, G. Xu, P.J. McCann, and X. M. Fang, N. Dai, C. L. Felix, W. W. Bewley, I. Vurgaftman, and J. R. Meyer, "IV-VI Compound Mid-Infrared High-Reflectivity Mirrors and Vertical-Cavity Surface-Emitting Lasers Grown by Molecular Beam Epitaxy" *Appl. Phys. Lett.*, **76**, 3688 (2000).
13. W. W. Bewley, C. L. Felix, I. Vurgaftman, J. R. Meyer, G. Xu and Z. Shi, "Lead-Salt Vertical-Cavity Surface-Emitting Lasers Operating at  $\lambda=4.5\text{-}4.6\mu\text{m}$  with Optical Pumping", *Electron. Lett.* **36**, 539 (2000).
14. G. Xu, X. M. Fang, P. J. McCann, Z. Shi, "MBE growth of Wide Bandgap  $\text{Pb}_{1-x}\text{Sr}_x\text{Se}$  on Si (111) Substrate", *J. Crystal Growth*, **209**, 763 (2000).
15. X. M. Fang, H.Z.Wu, Z. Shi, P.J. McCann and N. Dai, "Molecular Beam Epitaxy of Periodic  $\text{BaF}_2/\text{PbEuSe}$  Layers on Si(111)" *J.Vac. Sci. Technol.* **B17**, 1297 (1999).
16. G. Springholz, Z. Shi and H. Zogg, "Molecular Beam Epitaxy of Narrow Gap IV-VI Semiconductors", *Heteroepitaxy: Thin Film System*, Eds.; A. W. K. Liu, M. B. Santos, World Publishing, 1999.
17. Z. Shi, "GaSb-PbSe-GaSb Double Heterostructure Mid-Infrared Lasers", *Appl. Phys. Lett.*, **72**, 1272 (1998).
18. Z. Shi, H. Zogg and U. Keller, "Thick Crack-free  $\text{CaF}_2$  Epitaxial Layer on GaAs (100) Substrate by Molecular Beam Epitaxy", *J. Electron. Materials*, **27**, 55 (1998).
19. D. Jung, F. X. Kaertner, N Matuscheck, D. H. Sutter, F. Morier-Genoud, Z. Shi, V. Scheuer, M. Tilsch, T. Tschudi, U. Keller, "Semiconductor Saturable Absorber Mirrors Supporting sub-10-fs pulses", *Appl. Phys.* **B.65**, 137 (1997).
20. Z. Shi, H. Zogg, P. Müller, I. D. Jung and U. Keller, "Wide Bandwidth (100) GaAs/Fluorides Quarter-Wavelength Bragg Reflectors Grown by Molecular Beam Epitaxy", *Appl. Phys. Lett.*, **69**, 3474 (1996).
21. G. Bauer, M. Kriechbaum, Z. Shi and M. Tacke, "IV-VI Quantum Wells for Infrared Lasers", *J. Nonlinear Optical Phys. & Materials*, **4**, 283 (1995).
22. Z. Shi, M.Tacke, A.Lambrecht, and H.Böttner, "Mid Infrared Lead Salt Multi-Quantum-Well Diode Lasers With 282 K Operation", *Appl. Phys. Lett.*, **66**, 2537 (1995).
23. Z. Shi, A.Lambrecht and M.Tacke, "Determination of Band-Edge Offset by Weak-Field Hall Measurement on MBE PbSe/PbEuSe Multi-Quantum-Wells on KCl", *Solid State Electron.*, **37**, 1113 (1994).