

1. M. Su, J. H. Zhao, and K. Sheng, "Investigation of Ni ohmic contact scheme for 4H-SiC vertical-channel JFETs", *Solid State Electronics*, under review.
2. M. Su, K. Sheng, J. H. Zhao, and X. Li, "4H-SiC LJFET-based power IC using depletion load", presented at Intl. Semi. Device Research Symposium, College Park, MD. Dec 2009. Full paper submitted to *Solid State Electronics*, under review.
3. K. Sheng, Y. Zhang, L. Yu, M. Su, and Jian H. Zhao, "Design of high temperature Sic LJFET-based logic inverter and integrated gate driver, Proc. of IEEE 6<sup>th</sup> Intl. Power Electronics and Motion Control Conf. (IPEMC), pp.302-306, 2009.
4. K. Sheng, Y. Zhang, L. Yu, M. Su, and J. H. Zhao, "High frequency switching of SiC high-voltage LJFET," , *IEEE Trans. on Power Electronics*, Vol. 24, pp.271-277, 2009.
5. Yongxi Zhang, Xiangyang Hu, Jian H. Zhao, Kuang Sheng, W. Roger Cannon, Xiaohui Wang, Leonid Fursin, "Rheology and thermal conductivity of diamond powder filled liquid epoxy encapsulants for electronic packaging", *IEEE Trans. on Comp. and Packaging Tech.*, Vol. 32, No.4, December, 2009, pp.716-723.
6. Jianhui Zhang, Leonid Fursin, Xueqing Li, Xiaohui Wang, Jian H. Zhao, Brenda L. VanMil, Rachael L. Myers-Ward, Charles R. Eddy, Jr., and D. Kurt Gaskill, "4H-SiC Bipolar Junction Transistors with Graded Base Doping Profile", *Materials Science Forum*, Vols. 615-617 (2009) pp 829-832.
7. J. Chen, S. C. Lien, Y. C. Shin, Z. C. Feng, C. H. Kuan, J. H. Zhao, and W. J. Wu, "Occurrence of polytype transformation during nitrogen doping of SiC bulk wafer", *Materials Science Forum*, Vols. 600-603 (2009) pp 39-42.
8. J. Hu, X. Li, P. Alexandrov, X. Wang, and J. H. Zhao, "5kV, 9.5A SiC JBS with Non-uniform Guard Ring Edge Termination for High Power Switching Applications," *Materials Science Forum*, Vols. 600-603 (2009) pp 947-950
9. J. Hu, X. Xin, P. Alexandov, J. H. Zhao, B. L. VanMil, D. K. Gaskill, "4H-SiC Single Photon Avalanche Diode for 280nm UV Applications", *Materials Science Forum*, Vols. 600-603 (2009) pp 1203-1206.
10. Z. C. Feng, C. Tran, I. T. Ferguson, and J. H. Zhao, "Material properties of GaN films grown on SiC/SOI substrate", *Materials Science Forum*, Vols. 600-603 (2009) pp 1313-1316.
11. Jianhui Zhang, Petre Alexandrov, Jian H. Zhao "1600 V, 5.1 mΩ×cm<sup>2</sup> 4H-SiC BJT with a High Current Gain of beta=70", *Materials Science Forum*, Vols. 600-603 (2009) pp 1155-1158

12. Y. Zhang, K. Sheng, M. Su, J.H. Zhao, P. Alexandrov, L.Fursin, "Development of High Temperature Lateral HV and LV JFETs in 4H SiC", *Materials Science Forum*, Vols. 600-603 (2009) pp 1091-1094
13. Yuzhu Li, Petre Alexandrov, Jian H. Zhao, "1.88-mΩ·cm<sup>2</sup> 1650-V Normally on 4H-SiC TI-VJFET", *IEEE Transactions on Electron Devices*, Vol.55, No. 8, pp.1880-1886, August 2008
14. J. Hu, X. Xin, C. L. Joseph, X. Li, and J. H. Zhao, "1×16 Pt-4H-SiC Schottky Photodiode Array for Low-Level EUV and UV Spectroscopic detection," *IEEE Photonics Technology Letters*, Vol.20, No. 24, Dec. 15, 2008.
15. Z. C. Feng, S. C. Lien, J. H. Zhao, X. W. Sun, W. Lu, „Structural and Optical studies on ion-implanted 6H-SiC thin films", *Thin Solid Films*, Vol. 516 No. 16 (2008), pp.5217-5222.
16. K. Sheng, Y. Zhang, M. Su, J. H. Zhao, X. Li, P. Alexandrov, and L. Fursin, "Demonstration of the first SiC power integrated circuit", *Solid State Electronics*, Vol. 52 (10), October 2008, Pages 1636-1646.
17. L. C. Yu, K. Sheng, and J. H. Zhao, "Modeling and Design of a Monolithically Integrated Power Converter on SiC", in print, *Solid State Electronics*, Vol. 52 (10), October 2008, Pages 1625-1630, 2008.
18. J. H. Zhao, K. Sheng, Y. Zhang, and M. Su, "Current status and future prospects of SiC power JFETs and ICs", *IEICE Trans. Electronics*. Vol. E39-C, No.7, 2008.
19. Jianhui Zhang, Xueqing Li, Petre Alexandrov, Leonid Fursin, Xiaohui Wang, Jian H. Zhao, "Fabrication and Characterization of High-Current-Gain 4H-SiC Bipolar Junction Transistors", *IEEE Transactions on Electron Devices*, Vol.55, No. 8, pp.1899-1906, August 2008
20. Yongxi Zhang, Kuang Sheng, Ming Su, Jian H. Zhao, "Development of 4H-SiC LJFET-Based Power IC", *IEEE Transactions on Electron Devices*, Vol.55, No. 8, pp.1934-1945, August 2008
21. Jun Hu, Xiaobin Xin, Xueqing Li, Jian H. Zhao, Brenda L. VanMil, Kok-Keong Lew, Rachael L. Myers-Ward, Charles R. Eddy, Jr, D. Kurt Gaskill "4H-SiC Visible-Blind Single-Photon Avalanche Diode for Ultraviolet Detection at 280 and 350 nm", *IEEE Transactions on Electron Devices*, Vol.55, No. 8, pp.1977-1983, August 2008
22. J. Wu, J. Hu, J. H. Zhao, X. Wang, X. Li, L. Fursin, and T. Burke, "Normally-off 4H-SiC trench-gate MOSFETs with high mobility," *Solid State Electronics*, Vol. 52, pp. 909-913, 2008
23. X. Xin, J. Hu, P. Alexandov, J. H. Zhao, B. L. VanMil, D. K. Gaskill, K.-K. Lew, R. Myers-Ward, C. Eddy, Jr., "High performance 4H-SiC single photon avalanche

- diode operating at solar blind wavelength,” *Proceedings of SPIE - Advanced Photon Counting Techniques II*, vol. 6771, pp. 677114-21, 2007.
24. Y. Zhang, K. Sheng, M. Su, J. H. Zhao, P. Alexandrov, and L. Fursin, “1000V 9.1mΩcm<sup>2</sup> normally-off 4H-SiC lateral RESURF JFET for power integrated circuit applications”, *IEEE EDL* Vol. 28, No.5, 2007, pp. 404-407.
  25. Ming Su, Kuang Sheng, Yuzhu Li, Yongxi Zhang, Jian Wu, Jian H. Zhao, Jianhui Zhang, Larry X. Li, "430-V 12.4-mΩ·cm<sup>2</sup> Normally off 4H-SiC Lateral JFET," *IEEE Electron Device Letters*, vol.27, pp. 834- 836, Oct. 2006.
  26. Jianhui Zhang, Petre Alexandrov, Terry Burke, and Jian H. Zhao, “4H-SiC Power Bipolar Junction Transistor with a Very Low Specific On-resistance of 2.9 mΩ.cm<sup>2</sup>”, *IEEE Electron Device Letters*, Vol.27, pp.368-370, May, 2006.
  27. K. Sheng, L.C. Yu, J. Zhang and J.H. Zhao, “High temperature characterization of SiC BJTs for power switching applications”, *Solid-State Electronics*, Vol. 50, pp.1073-1079, 2006.
  28. J. Zhang, J. Wu, P. Alexandrov, T. Burke, K. Sheng and J. H. Zhao, “1836 V, 4.7 mΩ.cm<sup>2</sup> high power 4H-SiC bipolar junction transistor”, *Materials Science Forum*, Vols.527-529, pp.1417-1420, 2006.
  29. Ming Su, Xiaobin Xin, Xueqing Li., Jian H. Zhao, “Demonstration of High-voltage 4H-SiC Bipolar RF Power Limiter”, *Materials Science Forum* Vols. 527-529, pp. 1371-1374, 2006,
  30. Y. Li, P. Alexandrov, J. Zhang, L.X. Li, J.H. Zhao, “10 kV, 87 mΩ-cm<sup>2</sup> normally-off 4H-SiC vertical junction field-effect transistor”, *Materials Science Forum*, Vols.527-529, pp.1187-1190, 2006.
  31. J. H. Zhao, P. Alexandrov, Y. Li, L. X. Li, K. Sheng, R. Lebron-Velilla, and M. Su, “Design, Fabrication and Application of 4H-SiC Trenched-and-Implanted Vertical JFETs”, *Materials Science Forum*, Vols.527-529 (2006), pp.1191-1194
  32. Feng Yan, Xiaobin X, Peter Alexandrov, Carl M. Stahle, B. Guan, and Jian H. Zhao “Development of Ultra High Sensitivity UV Silicon Carbide Detectors”, *Materials Science Forum* Vols. 527-529, pp. 1461-1464, 2006.
  33. Jian Wu, Leonid Fursin, Yuzhu Li, Petre Alexandrov, M Weiner and J H Zhao, " 4.3 kV 4H-SiC merged PiN/Schottky diodes", *Semicond.Sci.Technol.* vol. 21, pp.987-991, 2006
  34. J. Hu, X. Xin, J. H. Zhao, F. Yan, B. Guan, J. Seely, and B. Kjornrattanawanich, "Highly sensitive visible-blind extreme ultraviolet Ni/4H-SiC Schottky photodiodes with large detection area," *Opt. Lett.* V.31, n.11, pp. 1591-1593 Jun 2006

35. J.H. Zhao, J. Zhang, X. Li, and K. Sheng, "Effect of graded base doping on the gain of SiC BJT", International Semiconductor Device Research Symposium (ISDRS), *IEEE conference proceeding*, pp.398-399, Dec. 2005.
36. K. Sheng, L.C. Yu, J. Zhang and J.H. Zhao, "High temperature characterization of SiC BJTs for power switching applications", *International Semiconductor Device Research Symposium* pp.168-169, Dec. 2005.
37. J. Zhang, P. Alexandrov, J. H. Zhao, G. Khalil, and T. Burke, "4H-SiC bipolar junction transistors for ground vehicle applications" *The 6<sup>th</sup> International All Electric Combat Vehicle (AECV) Conference*, Bath, England, 6/13-16, 2005
38. Jianhui Zhang, Petre Alexandrov, and Jian H. Zhao, Terry Burke, "1677 V, 5.7 mΩ.cm<sup>2</sup> 4H-SiC Bipolar Junction Transistors", *IEEE EDL* Vol.26 (3), pp.188-190, 2005.
39. X. Xin, F. Yan, T. W. Koeth, C. Joseph, J. Hu and J. H. Zhao, "Demonstration of 4H-SiC visible-blind EUV and UV detector with large detection area", *IEE Electronics Lett.* Vol. 41 (21), 2005, pp.1192-1193, 2005.
40. X. Xin, F. Yan, X. Sun, P. Alexandrove, C. M. Stahle, J. Hu, M. Matsumura, X. Li, M. Weiner, and J. H. Zhao, "Demonstration of 4H-SiC UV single photon counting avalanche photodiode", *IEE Electronics Lett.* Vol 41(4), pp.212-214, 2005.
41. Jian H. Zhao (Invited) "SiC Power Field-Effect Transistors", *MRS Bulliten*, Vol 30, pp.293-298, 2005.
42. P. Sannuti, X.Li, F.Yan, K. Sheng and J.H.Zhao, 'Channel Electron Mobility in 4H-SiC Lateral Junction Field Effect Transistors', *International Journal of Solid-State Electronics*, Volume 49, No. 12, pp. 1900-1904, 2005
43. J.-S. Lai, H. Yu, J. Zhang, P. Alexandrov, Y. Li, J. H. Zhao, K. Sheng, and A. Hefner, 'Characterization of Normally-off SiC Vertical JFET Devices and Inverter Circuits', *Proceedings of Industry Applications Conference*, Volume 1, pp. 404 – 409, 2005.
44. J. H. Zhao, K. Sheng and R.C. Lebron-Velilla, (Invited paper), "Silicon Carbide Schottky Barrier Diode", *Journal of High Speed Electronics and Systems*, Vol. 5, No.4, pp.821-866, 2005
45. K. Sheng, J.H. Lee, P. Alexandrov and J.H. Zhao, 'Characterization and application of SiC TI-VJFETs', International Semiconductor Device Research Symposium, 2005, pp. 296-297.
46. Yanbin Luo, Jianhui Zhang, Petre Alexandrov, Leonid Fursin, and Jian H. Zhao, "Fabrication and Characterization of High Current Gain ( $\beta=430$ ) and High Power

- (23A-500V) 4H-SiC Hybrid Darlington Bipolar Transistor”, *IEEE Trans. Electronic Devices*, Vol.51, No. 12, pp. 2211-2216, 2004.
47. Jian H, Zhao, Kiyoshi, Tone, Xueqing, Li, Petre, Alexandrov, Leonid, Fursin Maurice, Weiner, “3.6 mΩ cm<sup>2</sup>, 1726 V 4H-SiC normally-off trench-and-implanted vertical JFETs and circuit applications”, *IEE Proceedings: Circuits, Devices & Systems*, Vol. 151 (3) pp231-237, 2004.
  48. Feng Yan, Xiaobin Xin, Shahid Aslam, Yuegang Zhao, David Franz, Jian H. Zhao and Maurice Weiner, "4H-SiC Photo Detectors With Large Area and Very High Specific Detectivity", *IEEE Journal of Quantum Electronics*, Vol. 40, No. 9, 2004.
  49. J.H. Zhao, P. Alexandrov, J. Zhang, X. Li, “Fabrication and Characterization of 11-kV Normally Off 4H-SiC Trenched-and-Implanted Vertical Junction FET,” *Electron Device Letters, IEEE*, Vol: 25, Issue: 7, pp.474-476, 2004.
  50. J. Zhang, P. Alexandrov, and J. H. Zhao, “A 500V, Very High Current Gain ( $\beta=1517$ ) 4H-SiC Bipolar Darlington Transistor”, *Materials Science Forum*, Vol. 457-460, pp1165-1168, 2004.
  51. J. Zhang, P. Alexandrov, and J. H. Zhao, “High Power (500V-70A) and High Gain (44-47) 4H-SiC Bipolar Junction Transistors”, *Materials Science Forum*, Vol. 457-460, pp1149-1152, 2004
  52. Jian Wu, Leonid Fursin, Yuzhu Li, Petre Alexandrov and Jian H. Zhao. “4,308V, 20.9 mΩ·cm<sup>2</sup> 4H-SiC MPS Diodes based on a 30μm Drift Layer.” *Materials Science Forum*, Vol. 457-460, pp1109-1112, 2004.
  53. Y. Li, L. Fursin, J. Wu, P. Alexandrov and J. H. Zhao. “2.5KV-30A Inductively Loaded Half-Bridge Inverter Switching Using 4H-SiC MPS Free-Wheeling Diodes.” *Materials Science Forum*, Vol. 457-460, pp.1097-1100, 2004.
  54. J. H. Zhao, J. Zhang, P. Alexandrov, and T. Burke, “A High Voltage (1570V) 4H-SiC Bipolar Darlington with Current Gain  $\beta>640$  and Tested in a Half-bridge Inverter up to 20A at  $V_{Bus}=900V$ ”, *Materials Science Forum*, Vol. 457-460, pp1169-1172, 2004.
  55. J. Zhang, J. H. Zhao, P. Alexandrov, and T. Burke, “Demonstration of first 9.2 KV 4H-SiC bipolar junction transistor”, *IEE Electronics Letters*, Vol. 40, No. 21, pp1381-1382, 2004.
  56. J. H. Zhao, J. Zhang, P. Alexandrov, X. Li, and T. Burke, “A High Voltage (1,750V) and High Current Gain ( $\beta= 24.8$ ) 4H-SiC Bipolar Junction Transistor Using a Thin (12 μm) Drift Layer”, *Materials Science Forum*, Vol. 457-460, pp. 1173-1176, 2004.

57. Z. Wu, X. Xin, F. Yan, and J. H. Zhao, "Demonstration of the first 4H-SiC Metal-Semiconductor-Metal Ultraviolet Photodetector", *Materials Science Forum*, Vol. 457-460, pp. 1491-14946, 2004.
58. J.H. Zhao, K. Tone, X. Li, P. Alexandrov, L. Fursin, M. Weiner, "6A, 1kV 4H-SiC Normally-Off Trenched-and-Implanted Vertical JFETs," *Materials Science Forum*, Vol. 457-460, pp.1213-1216, 2004.
59. L. Fursin, X. Li, J.H. Zhao, "1,530V, 17.5m $\Omega$ cm<sup>2</sup> Normally-Off 4H-SiC VJFET Design, Fabrication and Characterization," *Materials Science Forum*, Vol. 457-460, pp.1137-1140, 2004.
60. J.H. Zhao, L. Fursin, P. Alexandrov, X. Li, M. Weiner, "4,340V, 40 m $\Omega$ cm<sup>2</sup> Normally-Off 4H-SiC VJFET," *Materials Science Forum*, Vol. 457-460, pp.1161-1164, 2004.
61. J. H. Zhao, J. Zhang, Y. Luo, X. Hu, Y. Li, H. Yu, J. Lai, P. Alexandrov, L. Fursin, X. Li, J. Carter, and M. Weiner, "The First 4H-SiC BJT-based 20 kHz, 7HP PWM DC-to-AC Inverter for Induction Motor Control Applications", *Materials Science Forum*, Vol. 457-460, pp.1137-1140, 2004.
62. X. Li, J.H. Zhao, "Design of 1.7 to 14 kV Normally-Off Trenched and Implanted Vertical JFET in 4H-SiC," *Materials Science Forum*, Vol. 457-460, pp.1197-1200, 2004.
63. J.H. Zhao, X. Li, K. Tone, P. Alexandrov, L. Fursin, J. Carter, M. Weiner, "High Voltage (500V-14kV) 4H-SiC Unipolar Bipolar Darlington Transistors for High-Power and High-Temperature Applications," *Materials Science Forum*, Vol. 457-460, pp.957-962, 2004.
64. B. K.Ng, J.P.R. David, D.J. Massey, R.C. Tozer, G.J. Rees, F. Yan, J. H. Zhao, and M. Weiner "Avalanche Multiplication and Breakdown in 4H-SiC Diodes", *Materials Science Forum*, Vol. 457-460, pp.1069-1072, 2004.
65. Jian H, Zhao, Leonid, Fursin, Luhua, Jiao, Xueqing, Li, Terry, Burke, "Demonstration of 1789 V, 6.68 m $\Omega$ .cm<sup>2</sup> 4H-SiC merged-PiN-Schottky diodes", *Electronics Letters*, Vol. 40 (6) pp390-391, Mar 18/2004
66. Leonid, Fursin, Jian H, Zhao, Maurice, Weiner, "1530V, 16.8m $\Omega$ .cm<sup>2</sup>, 4H-SiC normally-off vertical junction field-effect transistor", *Electronics Letters*, Vol. 40 (4) pp270-271, Feb 19/2004
67. J. H. Zhao, K. Tone, K. Sheng, X. Li, P. Alexandrov, L. Fursin, M. Weiner, T. Burke, 'A High Performance 4H-SiC Normally-off VJFET', Proceedings of the

- International Power Electronics and Motor Control Conference (IPEMC'04), August, 2004, pp. 342-346
68. X. Li, Y. Luo, L. Fursin, J. H. Zhao, M. Pan, P. Alexandrov and M. Weiner, "On the temperature coefficient of 4H-SiC BJT current gain," *Solid-State Electronics*, Vol. 47, Issue 2, pp.233-239, 2003.
  69. K. Tone, J. H. Zhao, L. Fursin, P. Alexandrov, M. Weiner, "4H-SiC normally-off vertical junction field-effect transistor with high current density", *IEEE Electron Device Letters*, Vol. 24, Iss. 7, pp 463–465, (2003).
  70. Alexandrov, P.; Zhang, J.; Li, X.; Zhao, J.H.; "Demonstration of first 10 kV, 130 mΩ.cm<sup>2</sup> SiC TI-VJFET", *Electronics Letters*, Vol: 39, Issue: 25, 11 Pp. 1860 – 1861 Dec. 2003
  71. Luo, Yanbin. Zhang, Jianhui. Alexandrov, Petre. Fursin, Leonid. Zhao, Jian H. Burke, Terry. "High Voltage (greater than 1 kV) and High Current Gain (32) 4H-SiC Power BJTs Using Al-Free Ohmic Contact to the Base" *IEEE Electron Device Letters*. Vol 24 n 11 pp. 695-697, November 2003.
  72. Ng, B.K.; David, J.P.R.; Tozer, R.C.; Rees, G.J.; Feng Yan; Zhao, J.H.; Weiner, M.; "Nonlocal effects in thin 4H-SiC UV avalanche photodiodes" *Electron Devices, IEEE Transactions on*, Vol 50, Issue 8, pp.1724 – 1732, Aug. 2003.
  73. Zhao, J.H.; Alexandrov, P.; Li, X.; "Demonstration of the first 10-kV 4H-SiC Schottky barrier diodes" *Electron Device Letters, IEEE*, Vol 24, Issue: 6, pp. 402 – 404, June 2003.
  74. Jianhui Zhang, Yanbin Luo, Petre Alexandrov, Leonid Fursin, and Jian H. Zhao. "A High Current Gain 4H-SiC NPN Power Bipolar Junction Transistor" *IEEE Electron Device Letters*. Vol 24 n 5. p 327-329, May 2003.
  75. Zhao, Jian H. Tone, Kiyoshi. Alexandrov, Petre. Fursin, Leonid. Weiner, Maurice. "1710-V 2.77-mΩ.cm<sup>2</sup> 4H-SiC trenched and implanted vertical junction field-effect transistors" *IEEE Electron Device Letters*. V.24 n 2. p 81-83, February 2003.
  76. F. Yan, C. Qin, J. H. Zhao, M. Bush, G. Olsen, B. K. Ng, J. P. R. David, R. C. Tozer and M. Weiner. "Demonstration of 4H-SiC avalanche photodiodes linear array" *Solid-State Electronics*, Volume 47, Issue 2, Pages 241-245, February 2003.
  77. P. Alexandrov, W. Wright, M. Pan, M. Weiner, L. Jiao and J. H. Zhao, "Demonstration of high voltage (600–1300 V), high current (10–140 A), fast recovery 4H-SiC p-i-n/Schottky(MPS) barrier diodes" *Solid-State Electronics*, Volume 47, Issue 2, Pages 263-269, February 2003.

78. Zhao, J H. Tone, K. Zhang, J. Alexandrov, P. Fursin, L. Weiner, M. "Demonstration of a high performance 4H-SiC vertical junction field effect transistor without epitaxial regrowth" *Electronics Letters*. Vol 39 n 3 p 321-323, Feb 6 2003.
79. Zhao, J H. Alexandrov, P. Fursin, L. Weiner, M. "Demonstration of first 1050 V, 21.7 mΩ.cm<sup>2</sup> normally-off 4H-SiC junction field-effect transistor with implanted vertical channel" *Electronics Letters*. v 39 n 1 pp. 151-152, Jan 9 2003.
80. J. H. Zhao, X. Li, K. Tone, P. Alexandrov, M. Pan, and M. Weiner, "Design of a Novel Planar Normally-off Power VJFET in 4H-SiC," *Solid-State Electronics* V.47, pp.377-384 (2003).
81. Li X, Luo Y, Fursin L, Zhao JH, Pan M, Alexandrov P, Weiner M, "On the temperature coefficient of 4H-SiC BJT current gain", *SOLID-STATE ELECTRONICS* 47 (2): 233-239 FEB 2003
82. Yu, H.; Lai, J.; Zhao, J.H.; Wright, B.H.; "Gate driver based soft switching for SiC BJT inverter" *Power Electronics Specialist*, 2003. PESC '03. IEEE 34th Annual Conference on, Vol: 4, 15-19 June 2003 Pp. 1857 – 1862.
83. Y. Luo, J. H. Zhang, L. Fursin, J. H. Zhao, "Fabrication and characterization of high Current gain ( $\beta=430$ ) and High power (23A-500V) 4H-SiC Darlington Bipolar Transistors", *IEEE Device Research Conference*, Salt lake City, Utah, June 2003. Pp. 25
84. Huijie Yu, Jason Lai, Xudong Huang, Jian H. Zhao, Jianhui Zhang, Xiangyang Hu, John Carter, Leonid Fursin, "A gate driver based soft-switching SiC bipolar junction transistor", *Applied Power Electronics Conference and Exposition (APEC) 2003, eighteenth annual IEEE*, Vol 2, 2003, pp968-973.
85. J. H. Zhao, K. Tone, X. Li, P. Alexandrov, L. Fursin and M. Weiner, "3.6 mΩcm<sup>2</sup>, 1726V 4H-SiC Normally-off Trenched-and-Implanted Vertical JFETs," *The 15th International Symposium on Power Semiconductor Devices and Ics (ISPSD)*, April 14th - 17th 2003, Cambridge UK. Pp. 50 – 53
86. Ng, B.K.; David, J.P.R.; Tozer, R.C.; Rees, G.J.; Yan, F.; Qin, C.; Zhao, J.H.; "Performance of thin 4H-SiC UV avalanche photodiodes" *Optoelectronics, IEE Proceedings*, Vol: 150, Issue: 2, 18 April 2003 Pp. 187 – 190
87. Ng, B.K.; David, J.P.R.; Tozer, R.C.; Rees, G.J.; Yan, F.; Qin, C.; Zhao, J.H.; "High gain, low noise 4H-SiC UV avalanche photodiodes", *Institute of Physics Conference Series*, v 174, *Compound Semiconductors*, 2003, p 355-358



88. Zhao, J H. Alexandrov, P. Fursin, L. Feng, Z C. Weiner, M. "High performance 1500 V 4H-SiC junction barrier Schottky diodes" *Electronics Letters*. v 38 n 22. p 1389-1390, Oct 24 2002
89. X. Li, Y. Luo, J. H. Zhao, P. Alexandrov, M. Pan, and M. Weiner, "On the Temperature Coefficient of 4H-SiC NPN Transistor Current Gain," *Materials Science Forum*, Vols.389-393, pp.1333-1336 (2002).
90. X. Li, L. Fursin, J. H. Zhao, P. Alexandrov, M. Pan, M. Weiner, T. Burke, and G. Khalil, "A Novel, Planar 3000V Normally-Off Field Gated Bipolar Transistor in 4H-SiC," *Materials Science Forum*, Vols.389-393, pp.1345-1348 (2002).
91. Z. C. Feng, F. Yan, W. Y. Chang, J. H. Zhao, and J. Lin, "Optical characterization of ion implanted 4H-SiC", *Materials Science Forum*, Vol 389-393 p647-650, 2002
92. F. Yan, Chao Qin, Jian H. Zhao, and Maurice Weiner, "A novel technology to forming a very small bevel angle for edge termination", *Materials Science Forum*, Vol 389-393 p1305-1308, 2002.
93. F. Yan, C. Qin, J. H. Zhao, M. Bush, G. Olsen, and M. Weiner," Demonstration of 4H-SiC APD linear arrays", *Materials Science Forum*, Vol 389-393 p1431-1434, 2002.
94. J H. Zhao, X. Li, K. Tone, P. Alexandrov, M. Pan, and M. Weiner, "A novel high-voltage normally-off 4H-SiC vertical JFET", *Materials Science Forum* Vol. 389-393, pp 1223-1226, (2002).
95. W.Y. Chang, Z.C. Feng J. Lin F. Yan J. H. Zhao, "Surface and interface property of ion implanted 4H-Silicon Carbide" *International Journal of Modern Physics B* Vol 16 Nos 1and 2 pp.151-158 (2002).
96. L.Varani J.C.Vaissiere E.Starikov P.Shiktorov V.Gruzinskis L.Reggiani J.H.Zhao "Monte Carlo Calculation of THz generation in Nitrides" *Phys. Stat. Sol. (a)* Vol. 190 No1 p.247-256 2002.
97. P. Alexandrov, B. Wright, M. Pan, M. Weiner, L. Fursin, and J. H. Zhao, "4H-SiC MPS diode fabrication and characterization in an inductively loaded half-bridge inverter up to 100 kW", *Silicon Carbide and Related Materials - 2001 pts, 1 & 2*, *Materials Science Forum* Vol. 389-393, pp 1177-1180, (2002).

98. Y. Luo, L. Fursin, J. H. Zhao, P. Alexandrov, B. Wright, and M. Weiner, "All-SiC inductively-loaded half-bridge inverter characterization of 4H-SiC power BJTs up to 400V/22A", *Silicon Carbide and Related Materials - 2001 pts, 1 & 2, Materials Science Forum* Vol. 389-393, pp 1325-1328, (2002).
99. E.Starikov, P.Shiktorov, V.Gruzinskis, L.Reggiani, L.Varani, J.C.Vaissiere, J.H.Zhao "Comparative Study of Terahertz Generation in Wide Band Gap Bulk Semiconductors." *Materials Science Forum*, Vols. 384-385 (2002) pp 205-208
100. V. Gruzinskis, E. Starikov, P. Shiktorov, J. H. Zhao, "Theoretical Design and Analysis of SiC  $n^{++}pn^{-}n^{++}$ -Diode for 400 GHz Microwave Power Generation", *Materials Science Forum*, Vols. 384-385 (2002) pp 217-220
101. Ng, B.K.; Yan, F.; David, J.P.R.; Tozer, R.C.; Rees, G.J.; Qin, C.; Zhao, J.H.; "Multiplication and excess noise characteristics of thin 4H-SiC UV avalanche photodiodes" *Photonics Technology Letters, IEEE*, Vol 14, Issue: 9, pp.1342 – 1344, Sep 2002.
102. Chang W, Feng ZC, Lin J, Liu R, Wee ATS, Tone K, Zhao JH, "Infrared reflection investigation of ion-implanted and post-implantation-annealed epitaxially grown 6H-SiC", *SURFACE AND INTERFACE ANALYSIS* 33 (6): 500-505 JUN 2002
103. Starikov E, Shiktorov P, Gruzinskis V, Reggiani L, Varani L, Vaissiere JC, Zhao JH, "Monte Carlo calculations of THz generation in wide gap semiconductors", *PHYSICA B-CONDENSED MATTER* 314 (1-4): 171-175 MAR 2002
104. F.Yan, C.Qin, J.H.Zhao, M.Weiner, B.K.Ng, J.P.R.David, R.C.Tozer "Low-noise visible-blind UV avalanche photodiodes with edge terminated by 2 degrees positive bevel." *IEE, Electronics Letters*, vol.38, no.7, 28 March 2002, pp.335-6.
105. X. Li, Y.Luo, L.Fursin, J.H.Zhao, M.Pan, W.Wright, M.Weiner "Design and Fabrication of 4H-SiC BJT for power inverter application" *Proceedings of 4th International All Electric Combat Vehicle Conference*, Jan. 7-9, 2002, Noordwijkerhout, Netherlands
106. Huijie Yu, J. Lai, X. Li, Y. Luo, L. Fursin, J.H. Zhao, P. Alexandrov, B. Wright, M. Weiner, "An IGBT and MOSFET gated SiC bipolar junction transistor", *Industry Applications Conference 2002, 37th IAS Annual Meeting*, Conference Record of the, Vol. 4, 2002, pp.2609-2613.

107. Feng Yan; Chao Qin; Zhao, J.H.; Bush, N.; Olsen, G.; "Design and fabrication of 4H-SiC APD linear arrays" *Semiconductor Device Research Symposium*, 2001 International, 5-7 Dec. 2001 Pp. 17 – 20
108. Feng Yan; Chao Qin; Zhao, J.H.; "Avalanche breakdown of 4H-SiC diodes with edge terminated by a 2° positive bevel" *Semiconductor Device Research Symposium*, 2001 International, 5-7 Dec. 2001 Pp. 216 – 219
109. Li, X.; Luo, Y.; Fursin, L.; Zhao, J.H.; Pan, M.; Alexandrov, P.; Weiner, M.; "4H-SiC BJT and Darlington switch for power inverter applications" *Semiconductor Device Research Symposium*, 2001 International, 5-7 Dec. 2001 Pp. 9 – 12
110. (Invited) Zhao, J.H.; "Design and fabrication of a novel power VJFET in 4H-SiC" *Semiconductor Device Research Symposium*, 2001 International, 5-7 Dec. 2001 Pp. 564 – 567
111. Alexandrov, P.; Wright, W.; Pan, M.; Weiner, M.; Jiao, L.; Zhao, J.H.; "Demonstration of a 140 A, 800 V, fast recover 4H-SiC P-i-N/Schottky barrier (MPS) diode" *Semiconductor Device Research Symposium*, 2001 International, 5-7 Dec. 2001 Pp. 13 – 16
112. E.Starikov, P.Shiktorov, V.Gruzinskis, L.Reggiani, L.Varani, J.C.Vaissiere, J.H.Zhao "Monte Carlo simulation of small- and large-signal response operation of a GaN THz maser." *SPIE-Int. Soc. Opt. Eng. Proceedings of Spie - the International Society for Optical Engineering*, vol.4415, 2001, pp.196-201
113. X. Li, J. H. Zhao, P. Alexandrov, M. Pan, M. Weiner, T. Burke, and G. Khalil, "Vertical Power JFET in 4H-SiC with Implanted and Trenched Gate," *Symposium Proceedings of 2001 International Semiconductor Device Research Symposium (ISDRS'01)*, Dec. 5-7, 2001, Holiday Inn Georgetown, N.W. Washington, D.C. USA, pp.235-238 (2001)
114. J. H. Zhao, X. Li, L. Fursin, P. Alexandrov, M. Pan, M. Weiner, T. Burke, and G. Khalil, "A Novel High Power Bipolar Transistor in 4H-SiC," *Symposium Proceedings of 2001 International Semiconductor Device Research Symposium (ISDRS'01)*, Dec. 5-7, 2001, Holiday Inn Georgetown, N.W. Washington, D.C. USA, pp.231-234 (2001).
115. Y.M. Zhang Y.M. Zhang J.H. Zhao, "Effect of thermal anneal on the electrical characteristics of Ni/4H-SiC SBD", *Proceedings of the 1st International Conference on Semiconductor Technology*, pp.80-84 2001
116. V. Gruzinskis, P.Shiktorov, E.Starikov, J.H.Zhao, "Comparative study of 200-300 GHz microwave power generation in GaN TEDs by the Monte Carlo

- technique". *Semiconductor Science and Technology*, vol.16, no.9, Sept. 2001, pp.798-805.
117. Alexandrov, P.; Zhao, J.H.; Wright, W.; Pan, M.; Weiner, M.;  
"Inductively-loaded half-bridge inverter characterization of 4H-SiC merged  
PiN/Schottky diodes up to 230 A and 250°C" *Electronics Letters*, Vol: 37, Issue:  
20, 27 Sept. 2001 Pp. 1261 - 1262
118. E.Starikov, P.Shiktorov, V.Gruzinskis, L.Reggiani,L.Varani, J.C.Vissiere,  
J.H. Zhao. "Monte Carlo simulation of terahertz generation in nitrides". *Journal  
of Physics-Condensed Matter*, vol.13, no.32, 13 Aug. 2001, pp.7159-7168.
119. Alexandrov, P.; Zhao, J.H.; Wright, W.; Pan, M.; Weiner, M.;  
"Demonstration of 140 A, 800 V 4H-SiC pin/Schottky barrier diodes with multi-  
step junction termination extension structures" *Electronics Letters*, Vol: 37, Issue:  
18, 30 Aug. 2001 Pp. 1139 – 1140
120. F.Yan, Y.Luo, J.H.Zhao, M.Bush, G.H.Olsen, M.Weiner, "4H-SiC  
avalanche photodiode with multistep junction extension termination". *IEE,  
Electronics Letters*, vol.37, no.17, 16 Aug. 2001, pp.1080-1081. Publisher: IEE,  
UK.
121. Fursin, L.G.; Zhao, J.H.; Weiner, M.; "Nickel ohmic contacts to p and n-  
type 4H-SiC" *Electronics Letters* Vol: 37, Issue: 17, 16 Aug. 2001 Pp. 1092 -  
1093
122. J. H. Zhao, Y.Li, M.Lange, M.Cohen, G.H.Olsen "Utilising Zn  
segregation at InP/InGaAs interface for as-deposited ohmic contact formation for  
photonic and electronic device applications". *IEE, Electronics Letters*, vol.37,  
no.16, 2 Aug. 2001, pp.1048-1049.
123. X. Li, K. Tone, L. Fursin, J. H. zhao, T. Burke, P. Alexandrov, M. Pan and  
M. Weiner, "Multistep Junction Termination Extension for SiC Power Devices,"  
*Electronics Letters*, Vol.37, No.6, pp.392-393 (2001).
124. E. Starikov, P. Shiktorov, V. Gruzinskis,L. Reggiani, L. Vaissiere, and  
Jian H. Zhao, "Monte Carlo simulation of THz maser based on optical phonon  
transit-time resonance in GaN", *IEEE Trans. Electron Devices*, vol.48, no.3,  
March 2001, pp. 438-443.
125. Y.M.Zhang Y.M.Zhang P.Alexandrov and J.H.Zhao "Fabrication of 4H-  
SiC Merged PN-Schottky Diodes" *Chinese Journal Of Semiconductors*, Vol.22  
No.3 pp. 265-270 Mar. 2001.
126. E. Starikov P.Shiktorov V.Gruzinskis L.Reggiani L.Varani J.C.Vaissiere  
J.H.Zhao "Monte Carlo simulation of the generation of terahertz radiation in  
GaN" *J. Appl. Phys.* Vol 89 No2 p.1161-1171 Jan. 2001

127. P. Alexandrov, K. Tone, Y. Luo, J. H. Zhao, T. Burke, M. Pan, M. Weiner, "High performance C plus Al co-implanted 5000V 4H-SiC P+iN diode", *Electronics Letters*, Vol. 37, Iss. 8, pp 531-533, (2001).
128. W. Wright, J. Carter, P. Alexandrov, M. Pan, M. Weiner, J. H. Zhao, "Comparison of Si and SiC diodes during operation in three-phase inverter driving ac induction motor", *Electronics Letters*, Vol. 37, Iss. 12, pp 787-788, (2001).
129. Tone K, Zhao JH, Wiener M, Pan MH, "4H-SiC junction-barrier Schottky diodes with high forward current densities", *SEMICONDUCTOR SCIENCE AND TECHNOLOGY* 16 (7): 594-597 JUL 2001
130. Alexandrov, P.; Wright, W.; Pan, M.; Weiner, M.; Jiao, L.; Zhao, J.H.; "Demonstration of a 140 A, 800 V, fast recover 4H-SiC P-i-N/Schottky barrier (MPS) diode", *2001 International Semiconductor Device Research Symposium. Symposium Proceedings (Cat. No.01EX497)*, 2001, 13-16
131. Zhao JH, Gruzinskis V, Luo Y, Weiner M, Pan M, Shiktorov P, Starikov E, "Monte Carlo simulation of 4H-SiC IMPATT diodes", *SEMICONDUCTOR SCIENCE AND TECHNOLOGY* 15 (11): 1093-1100 NOV 2000
132. X. Li, K. Tone, L. Cao, P. Alexandrov, L. Fursin and J. H. Zhao, "Theoretical and Experimental Study of 4H-SiC Junction Edge Termination", *Silicon Carbide and Related Materials - 1999 pts, 1 & 2, Materials Science Forum* Vol. 338-3, pp 1375-1378, (2000).
133. Luo, Y. Fursin, L. Zhao, J H. "Demonstration of 4H-SiC power bipolar junction transistors" *Electronics Letters. v 36 n 17 Aug 2000. p 1496-1497*
134. Fursin, L. Tone, K. Alexandrov, P. Luo, Y. Cao, L. Zhao, J. Weiner, M. Pan, M. "Fabrication and characterization of 4H-SiC GTOs and diodes" *Materials Science Forum. v 338 II 2000. p 1399-1402*
135. J. H. Zhao, V. gruzinskis, M. Weiner, M. Pan, P. Shiktorov, and E. Starikov, "Monte Carlo simulation of Gunn effect and microwave power generation at 240GHz in  $n^+n^-n^-n^+$  GaN structures", *Materials Science Forum*, Vol.338-342, pp.1635-1638, 2000,
136. F. Yan, Y. Luo, J. H. Zhao, C. Dries, and G. Olsen, "Demonstration of a high performance visible-blind avalanche photodiode", *Materials Science Forum*, Vol.338-342, pp.1383-1386, 2000.
137. Z. C. Feng, S. J. Chua, Z. X. Shen, K. Tone, and J. H. Zhao, "Microscopic probing of raman scattering and photoluminescence on C-Al ion co-implaned 6H-SiC", *Materials Science Forum*, Vol.338-342, pp.659-662, 2000.

138. Y. Luo, F. Yan, K. Tone, J. H. Zhao, and J. Crofton, "Searching for device processing compatible ohmic contacts to implanted p-type 4H-SiC", *Materials Science Forum*, Vol.338-342, pp.1013-1016, 2000.
139. V. Gruzinskis, Y. Luo, J. H. Zhao, M. Weiner, M. Pan, P. Shiktorov, and E. Starikov, "Monte Carlo simulation of 4H-SiC IMPATT diodes", *Materials Science Forum*, Vol.338-342, pp.1379-1382, 2000.
140. K. Tone, J. H. Zhao, M. Weiner, M. Pan, "Fabrication and testing of 1,000V-60A 4H-SiC MPS diodes in an inductive half-bridge circuit", *Materials Science Forum*, Vol.338-342, pp.1187-1190, 2000
141. Cao LH, Li BH, Zhao JH, "Characterization of 4H-SiC gate turn-off thyristor", *SOLID-STATE ELECTRONICS* 44 (2): 347-352 FEB 2000
142. F. Yan, Jian H. Zhao, Greg Olsen, "Demonstration of the first 4H-SiC avalanche photodiodes", *Solid State Electronics*, vol. 44(2), pp.341-346, 2000.
143. E. Starikov, P. Shiktorov, V. Gruzinskis, L. Reggiani, L. Varani, J. C. Vaissiere, and Jian H. Zhao, "Monte Carlo calculations of amplification spectrum for GaN THz transit-time resonance maser", *Proceedings of 7th Intl. Workshop on Computational Electronics*, p.17-18, 2000
144. F.Yan Y.Luo J.H.Zhao G.Olsen "4H-SiC visible blind UV avalanche photodiode" *IEE, Electronics Letter* 35(11) pp. 929-930, 1999.
145. Z. C. Feng, S. J. Chua, K. Tone & J. H. Zhao, "Recrystallization of C-Al Ion Co-implanted Epitaxial 6H-SiC", *Appl. Phys. Lett.* 75, 472-474 (1999).
146. Zhao JH, Gruzinskis V, Mickevicius R, Shiktorov P, Starikov E, "Monte Carlo simulation of THz frequency power generation in notched n(+)-n(-)-n-n(+) 4H-SiC structures", *MATERIALS SCIENCE AND ENGINEERING B-SOLID STATE MATERIALS FOR ADVANCED TECHNOLOGY* 61-2: 287-290 JUL 30 1999
147. Li, B.; Cao, L.; Zhao, J.H.; "High current density 800-V 4H-SiC gate turn-off thyristors" *Electron Device Letters, IEEE*, Vol 20, Issue 5, May 1999 pp. 219 – 222
148. Tone, K.; Zhao, J.H.; "A comparative study of C plus Al coimplantation and Al implantation in 4H and 6H-SiC" *Electron Devices, IEEE Transactions on*, Vol 46, Issue 3, March 1999 pp. 612 – 619.
149. Campi, J.; Yan Shi; Yanbin Luo; Feng Yan; Zhao, J.H.; "Study of interface state density and effective oxide charge in post-metallization annealed

- SiO<sub>2</sub>-SiC structures" *Electron Devices, IEEE Transactions on*, Vol: 46, Issue: 3, March 1999 Pp. 511 – 519
150. Gruzinskis V, Zhao JH, Shiktorov P, Starikov E, "THz frequency power generation possibility due to nonparabolicity in n(+)-n-n(+) 4H-SiC structures", *ULTRAFAST PHENOMENA IN SEMICONDUCTORS MATERIALS SCIENCE FORUM 297-2*: 337-340 1999
  151. Gruzinskis V, Zhao JH, Shiktorov P, Starikov E, "Gunn effect and THz frequency power generation in n(+)-n-n(+) GaN structures", *ULTRAFAST PHENOMENA IN SEMICONDUCTORS MATERIALS SCIENCE FORUM 297-2*: 341-344 1999
  152. Y. Shi, Y. Luo, J. Campi, F. Yan; Y. K. Lee, J. Zhao, "Effect of PMA on effective fixed charge in thermally grown oxide on 6H-SiC," *Electronics Letters*, Vol. 34, No.7, 1998. Pp. 698 - 700
  153. Z.C. Feng, I. Ferguson, R.A. Stall, K. Li, Y. Shi, H. Singh, K. Tone, J.H. Zhao, A.T.S. Wee, K.L. Tan, F. Adar & B. Lenain, "Effects of Al-C ion-implantation and annealing in epitaxial 6H-SiC studied by structural and optical techniques", *Materials Science Forum 264-268*, 693-696 (1998).
  154. L. Cao and J. Zhao, "Etching of SiC using inductively coupled plasma", *J. of Electro-chemical Soc*, Vol.145, No.10, pp.3609-3612, Oct. 1998.
  155. Koscica, T.E.; Zhao, J.H.; "Applications of multi-functional characteristics in GaAs/AlGaAs field effect real space transfer transistors" *Electronics Letters*, Vol: 34, Issue: 17, 20 Aug. 1998 Pp. 1696 – 1697
  156. Mickevicius R, Zhao JH, "Comparative Monte Carlo study of electron transport in 3C, 4H and 6H silicon carbide", *SILICON CARBIDE, III-NITRIDES AND RELATED MATERIALS, PTS 1 AND 2 MATERIALS SCIENCE FORUM 264-2*: 291-294, Part 1-2 1998
  157. R. Mickevicius and J. Zhao, "Monte Carlo study of electron transport in SiC", *J. of Applied Physics*, Vol. 83(6), pp.3161-3167, March 1998.
  158. Y. Shi, J. Zhao, J. Sarathy, G. Olsen, and H. Lee, "Resonant cavity enhanced heterojunction phototransistors based on InGaAsSb/AlGaAsSb grown by MBE", *IEEE Photonics technl. Lett*, Vol. 10, n.2 pp.258-260, 1998
  159. C.K. Madsen and J. H. Zhao, "Increasing the free spectral range of silica waveguide rings for filter applications", *Optics Letters*, Vol.23 (3), 2/1/1998, pp.186-188.
  160. B. Li, L. Cao, and J. H. Zhao, "Evaluation of damage induced inductively-coupled plasma etching of 6H-SiC using Au Schottky barrier diodes", *Appl. Phys. Lett*, Vol.73, No.5, pp.653- 655, August 3, 1998.

161. Tone K, Weiner SR, Zhao JH, "Electrical characterization of p-type 6H-SiC layers created by C and Al co-implantation", *SILICON CARBIDE, III-NITRIDES AND RELATED MATERIALS, PTS 1 AND 2 MATERIALS SCIENCE FORUM* 264-2: 689-692, Part 1-2 1998
162. Cao L, Li B, Zhao JH, "Inductively coupled plasma etching of SiC for power switching device fabrication", *SILICON CARBIDE, III-NITRIDES AND RELATED MATERIALS, PTS 1 AND 2 MATERIALS SCIENCE FORUM* 264-2: 833-836, Part 1-2 1998
163. Campi J, Shi Y, Luo Y, Yan F, Lee YK, Zhao JH, "Effect of post-metal annealing on the quality of thermally grown silicon dioxide on 6H- and 4H-SiC", *SILICON CARBIDE, III-NITRIDES AND RELATED MATERIALS, PTS 1 AND 2 MATERIALS SCIENCE FORUM* 264-2: 849-852, Part 1-2 1998
164. Rodrigues, R.G., Piccone, D.E.; Tobin, W.H.; Willinger, L.W.; Barrow, J.A.; Hansen, T.A.; Zhao, J.; Cao, L.; "Operation of power semiconductors at their thermal limit", *Conference Record of 1998 IEEE Industry Applications Conference. Thirty-Third IAS Annual Meeting (Cat. No.98CH36242)*, 1998, pt. 2, p 942-53 vol.2
165. Y. Shi, J. Zhao, H. Lee, and G. Olsen, "Tunable photodetectors based on strained compensated GaInAsSb/AlGaAsSb multiple quantum wells grown by molecular beam epitaxy", *IEEE Trans. on Electron Devices*, Vol. 44, pp.2167-2173, 1997.
166. J. Zhao, K. Tone, S. Weiner, M. Caleca, H. Du, and S. Withrop, "Evaluation of ohmic contacts to P-type 6H-SiC created by C and Al co-implantation", *IEEE Electron Device Lett*, Vol 18, pp.375-377, 1997.
167. C.K. Madsen and J.H. Zhao, "Post-fabrication optimization of an autoregressive planar Waveguide lattice filter", *Applied Optics*, Vol. 36(3), 1997, pp.642-647.
168. Tone, K.; Weiner, S.R.; Zhao, J.H.; "Carbon and aluminium co-implantation for p-type doping in 6H-SiC" *Electronics Letters*, Vol: 33, Issue: 22, 23 Oct. 1997 pp. 1904 - 1906
169. Yan Shi; Zhao, J.H.; Sarathy, J.; Olsen, G.H.; Hao Lee; "Tunable resonant cavity enhanced photodetectors with GaInAsSb/AlGaAsSb multiple quantum well structure grown by molecular beam epitaxy" *Electronics Letters*, Vol: 33, Issue: 17, 14 Aug. 1997 pp. 1498 - 1499
170. W. Buchwald, J. Zhao and K.A.Jones. "A comparison of pnpn and oxygen-doped pn-i-pn GaAs thyristors", *IEEE Tran. on Electron Devices*, Vol.44(7), pp.1154-57, July, 1997.



171. T. Burke, H. Singh, K. Xie, T. Podlesak, J. Flemish, J. Carter, S. Scheider, J. Zhao, "SiC Thyristors for Electric Guns", *IEEE Trans on Magnetics*, Vol. 33(1), pp.432-437, 1997.
172. Y. Shi, J. Zhao, J. Sarathy and G. Olsen, and H. Lee, "Quantum confined Stark effect in GaInAsSb /AlGaAsSb quantum wells grown by molecular beam epitaxy", *Electronics Lett*, Vol 33(3), 33(3), pp.248-250, 1/1997
173. Y. Shi, J. Zhao, H. Lee, and G. Olsen, "Resonant cavity enhanced GaInAsSb photodetectors grown by MBE for room temperature operation at 2.35  $\mu\text{m}$ ", *Electronics Let*, Vol 32(24), Nov. 21, 1996, pp. 2268-69.
174. K. Xie, J. Zhao, J. Flemish, T. Burke, W. Buchwald, G. Lorenzo, and H. Singh, "A high-current and high-temperature 6H-SiC thyristor" *IEEE on Electron Devices Lett*, Vol. 17(3), pp.142-144. 1996.
175. K. Xie, J. Zhao, Y. Shi, H. Lee, and G. Olsen, "Resonant cavity enhanced GaInAsSb/AlAsSb photodetectors grown by MBE for Mid-IR applications", *IEEE Photonics Techno Lett.* . Vol8 (5), p. 667-669, May, 1996.
176. C.K. Madsen and J. H. Zhao, "A general planar waveguide autoregressive optical fiber" *Lightwave Technol.* Vol. 14(3), 3/1996, pp.437-447
177. Burke, T.; Xie, K.; Flemish, J.R.; Singh, H.; Podlesak, T.; Zhao, J.H.; "Silicon carbide power devices for high temperature, high power density switching applications" *Power Modulator Symposium*, 1996, Twenty-Second International, 25-27 June 1996 Pp. 18 – 21
178. Xie, K.; Flemish, J.R.; Burke, T.; Buchwald, W.R.; Zhao, J.H.; "High-temperature switching characteristics of 6H-SiC thyristor", *III-Nitride, SiC and Diamond Materials for Electronic Devices. Symposium*, 1996, p 93-8
179. T.E. Koscica, J. H. Zhao, "Field effect real space transfer transistor", *IEEE Electron Device Lett*, Vol 16, pp. 196-198, (1995).
180. T .E. Koscica and J. H. Zhao, "Frequency doubling in GaAs/AlGaAs field effect transistor using Real Space Transfer", *IEEE Electron Device Lett*, Vol 16(12), pp.545-547, Dec. 1995.
181. K. Xie, J. Zhao, J. Flemish, "Low damage and residue-free dry etching of 6H-SiC using electron cyclotron resonance plasma", *Appl. Phys. Lett*, Vol. 67(3), pp. 368-370 (1995).
182. J. Zhang, S. Etemad, J. Zhao, "Tunable Dispersion compensation by the angular conserved grating- pair system", *Applied Optics*, Vol 34(28), pp.6500-6505, Oct. 1995.

183. Burke, T.; Xie, K.; Flemish, J.R.; Singh, H.; Carter, J.; Zhao, J.H.; Buchwald, W.R.; Lorenzo, G.; "Silicon carbide thyristors for power applications" *Pulsed Power Conference, 1995. Digest of Technical Papers. Tenth IEEE International*, Vol: 1, 3-6 July 1995 pp. 327 - 335 vol.1
184. Kingsley, L.E.; Burke, T.; Weiner, M.; Youmans, R.J.; Singh, H.; Buchwald, W.R.; Flemish, J.; Zhao, J.H.; Xie, K.; "Silicon carbide opto-electronic switches", *Proceedings of the SPIE - The International Society for Optical Engineering*, v 2343, 1995, p 114-20
185. Xie, K.; Buchwald, W.R.; Zhao, J.H.; Flemish, J.R.; Burke, T.; Kingsley, L.; Weiner, M.; Singh, H.; "Switching characteristics of a high-temperature 6H-SiC thyristor" *Electron Devices Meeting, 1994. Technical Digest., International*, 11-14 Dec. 1994 Pp. 415 – 418
186. Flemish, J.R.; Xie, K.; Buchwald, W.; Casas, L.; Zhao, J.H.; McLane, G.; Dubey, M., "Comparison of microwave ECR and RF plasmas for dry etching of single crystal 6H-SiC", *Materials Research Society Symposium - Proceedings*, v 339, *Diamond, SiC and Nitride Wide Bandgap Semiconductors*, 1994, p 145-150
187. J. Flemish, K. Xie, and J. H. Zhao, "Smooth Etching of Single crystal 6H-SiC in an Electron Cyclotron Resonance Plasma Reactor", *Appl. Phys. Lett*, Vol. 64(17), pp. 2315-2317, 1994.
188. R.J. Lis, J.H. Zhao, L.D. Zhu, J. Ilian, S. McAfee, T. Burke, M. Weiner, W. Buchwald, and K.A. Jones, "An LPE Grown InP Based Optothyristor for Power Switching Applications", *IEEE Trans. on Electron. Devices*, Vol. 41, pp. 809-813, May, 1994.
189. J. H. Zhao, T. Burke, M. Weiner, A. Chin, and J. Ballingall, "A Novel High Power Optothyristor Based on AlGaAs/GaAs for Pulsed Power-Switching Applications", *IEEE Trans. on Electron Devices*, Vol. 41, pp. 819-825, May, 1994.
190. W.R. Buchwald, J. H. Zhao, L.D. Zhu, S. Schauer and K.A. Jones, "A Three Terminal InP/InGaAsP Optoelectronic Thyristor" *IEEE Tran. on Electron Devices*, Vol. 41, pp.620-622, (1994).
191. J. H. Zhao, Robert Lis, D. Coblenz, J. Ilian, S. McMee, T. Burke, M. Weiner, W. Buchwald, and K. A. Jones, "An InP-based optothyristor for pulsed power-switching applications", *IEEE Electron Device Lett*, Vol. 14(3), pp. 140-142, 1993.

192. Jian H. Zhao, R. Hwang, and S. Chang, "On the characterization of surface states and deep traps in GaAs MESFETs", *Solid State Electronics*, Vol. 36 (12), 1993, pp.1665-72.
193. Jian H. Zhao, T. Burke, M. Weiner, A. Chin, and J. M. Ballinghall, "Reverse-biased performance of a molecular beam epitaxial grown AlGaAs/GaAs high power optothyristor for pulsed power- switching applications", *J. Appl. Phys*, Vol. 74, pp. 5225-5230, 1993.
194. W. R. Buchwald, Jian H. Zhao, M. Hannatz, and E. H. Poindextor, "Electron and hole traps in heavily compensated InGaAs/GaAs heterostructures", *Solid State Electronics*, Vol. 36(7), pp. 1077-1082, 1993.
195. Jian H. Zhao, and Z. Lu "Molecular-beam-epitaxial-grown n-GaAs<sub>1-x</sub>Sb<sub>x</sub>/N-GaAs heterostruc- tures characterized by admittance spectroscopy", *J. Appl. Phys*, Vol. 73(11), pp. 7491-7495, 1993.
196. Jian H. Zhao, Z. Lu, W. Buchwald, D. Coblenz, S. McAfee, "Admittance spectroscopy char- acterization of InP /InGaAsP quantum wells grown by LP-MOVPE", *Appl. Phys. Lett*, Vol. 62(22), pp. 2810-2812, 1993.
197. Jian H. Zhao, T. Burke, D. Larson, M. Weiner, A. Chin, J. M. Ballingall, and T. Yu, "Sensitive optical gating of reverse biased AlGaAs/GaAs optothyristor for pulsed power switching applications", *IEEE Trans. on Electron Devices*, Vol. 40(14), pp. 817-823, 1993.
198. W. R. Buchwald, J. H. Zhao, G. F. McLane, and M. Mayyappan, "Effects of BC13 magnetron ion etching on deep levels in GaAs", *J. Appl. Phys*, Vol. 72(11), pp. 5512-13, 1993.
199. Jian H. Zhao, R. Hwang, and S. Chang, "A transconductance spectroscopy approach to device level surface state characterization", *IEEE Trans on Electron Devices*, Vol. 40 (6), pp. 1172-1174, June 1993.
200. Xie, K.; Zhao, J.H.; Flemish, J.; Burke, T.; Buchwald, W.; Kingsley, L.; Singh, H.; Weiner, M., "Fabrication and characterization of 6H-SiC switching devices", *Digest of Technical Papers. Ninth IEEE International Pulsed Power Conference (Cat. No.93CH3350-6)*, 1993, pt. 2, p 821-4 vol.2
201. Zhao, J.H.; Lis, R.; Coblenz, D.; Illan, J.; McAfee, S.; Burke, T.; Weiner, M.; Buchwald, W.; Jones, K., "An optically gated InP based thyristor for high power pulsed switching applications", *Advanced III-V Compound Semiconductor Growth, Processing and Devices Symposium*, 1992, p 575-80
202. Zhao, J.H.; Burke, T.; Larson, D.; Weiner, M.; Chin, A.; Ballingall, J.M.; Yu, T.-H., "A high performance optically gated heterostructure thyristor

- passivated with LT-GaAs", *Low Temperature (LT) GaAs and Related Materials Symposium*, 1992, p 217-22
203. Z-Q. Fang, D. C. Look, J. H. Zhao, "Traps in semi-insulating InP studied by thermally stimulated current spectroscopy", *Appl. Phys. Lett*, Vol. 61(5), pp. 589-591, 1992.
204. Z. Q. Fang, D. C. Look, and J. H. Zhao, "Traps in semi-insulating InP studied by thermally stimulated current spectroscopy", Abstract FB3, *the IV Intl. Conf. on Indium Phosphide and Related Materials*, April 20-24, 1992, Newport, RI. Pp. 634 – 637
205. Jian H. Zhao, T. Burke, D. Larson, M. Weiner, A. Chin, J. M. Ballingall, and T. Yu. "Dynamic I-V characteristics of an AlGaAs/GaAs-based optothyristor for pulsed power-switching applications", *IEEE Electron Device Lett*, Vol. 13(3), 1992, pp. 161-163.
206. Jian H. Zhao, P. F. Tang, and J. Jeong. "Compositional dependence of Schottky barrier heights of Au on MBE grown GaAs<sub>1-x</sub>Sb<sub>x</sub>", *Solid State Electronics*, Vol. 35(1), 1992, pp. 21-26.
207. Jian H. Zhao, T. Burke, D. Larson, M. Weiner, A. Chin, J. M. Ballingall, and T. Yu, "Using the Reverse dynamic I-V characteristics of an ALGaAs/GaAs-based optothyristor for pulsed power-switching applications", *Electronics Letters*, Vol. 28(11), 1992, pp. 977-979.
208. Jian H. Zhao, P. F. Tang, R. Hwang, and S. Chang. "Frequency dependence of transconductance on deep traps in GaAs metal semiconductor field-effect transistors", *J. Appl. Phys*, Vol. 70(3), 1991, pp. 1899-1901.
209. Jian H. Zhao. "Effects of Carrier Confinement by InGaAs/GaAs Heterointerface Barrier on Deep Trap Concentration Profiling", *IEEE Trans. on Electron Devices*, Vol. 37(10), 1990, pp. 2158-2164.
210. Jian H. Zhao. "Modeling the Effects of Surface states on DLTS Spectra of GaAs MESFETs", *IEEE Trans. on Electron Devices*, Vol. 37, 1990, pp. 1235-1244.
211. Jian H. Zhao. "Schottky diodes of Au on GaAs<sub>1-x</sub>Sb<sub>x</sub>/GaAs n-N heterostructures grown by MBE", *IEEE Electron Device Letters*, Vol. 11(10), 1990, pp. 478-480.
212. Jian H. Zhao. "Device Geometry and Temperature Dependence of DLTS Spectra of GaAs MESFETs", *J. Appl. Phys*, Vol. 67(8), 1990, pp. 3895-3897.
213. Jian H. Zhao, Z. Q. Fang, Lei Shan, T. E. Schlesinger, and A. G. Milnes. "Defects due to nonstoichiometric growth in semi-insulating GaAs and their effects on Si implantation activation efficiency", *J. Appl. Phys*, Vol. 66, 1989, pp. 5440-5443.

214. Z. Q. Fang, L. Shan, Jian H. Zhao, X. J. Bao, T. E. Schlesinger, and A. G. Milnes. "Annealing Behavior of Undoped Bulk GaAs", *J. Electronic Mater*, Vol.18, No.2, 1989, pp. 123-129.
215. Z. Li, H. K. Kim, J. C. Jeong, D. Wong, Jian H. Zhao, Z-Q. Fang, T. E. Schlesinger, and A. G. Milnes. "Trap Gettering By Isoelectronic Doping of p-GaAs and n-GaAs Grown By MBE", *J. Crystal Growth*, vol. 95, 1989, pp. 296-300.
216. Jian H. Zhao, A. Z. Li, J. Jeong, D. Wong, J. C. Lee, M. L. Milliman, T. E. Schlesinger, and A. G. Milnes. "Study of MBE GaAs<sub>1-z</sub>Sb<sub>z</sub>(x ::; 0.76) Grown on GaAs(100)", *J. Vacuum Science and Technology*, B6, 1988, pp. 627-630.
217. Jian H. Zhao, T. E. Schlesinger, and A. G. Milnes. "On the Carrier Profiling of GaAsSb<sub>j</sub>GaAs Heterostructures", *J. Electronic Mater*, Vol.17, No.3, 1988, pp. 255-261
218. Z. Li, Jian H. Zhao, J. C Jeong, D. Wong, W. C. Zhou, J. C. Lee, T. Koyanagi, Z. Y. Chen, T. E. Schlesinger, and A. G. Milnes, "Characterization of GaAs<sub>1-x</sub>Sb<sub>x</sub> Grown by MBE on GaAs", *Mater. Sci. and Engineering*, B1, 1988, pp. 203-211.
219. Jian H. Zhao, T. E. Schlesinger, and A. G. Milnes. "Determination of Carrier Capture Cross Setion of Traps by DLTS of Semiconductors", *J. Appl. Phys*, Vo1.62 (7), 1987, pp. 2865-2870.
220. Jian H. Zhao, J. C. Lee, Z. Q. Fang, T. E. Schlesinger, and A. G. Milnes. "The Effects of Nonabrupt Depletion Edge on Deep-trap Profiles Determined By DLTS", *J. Appl. Phys*, Vo1.61 (12), 1987, pp. 5303-5307.
221. Jian H. Zhao, J. C. Lee, Z. Q. Fang, T. E. Schlesinger, A. G. Milnes. "Theoretical and Experi- mental Determination of Deep Trap Profiles in Semiconductors", *J. Appl. Phys*, Vo1.61 (3), 1987, pp. 1063-1067.

**Conference Presentations: over 170 in total.**