

Publications of Prof. Anisul Haque

(a) Book Chapter

1. **A. Haque**, “Self-consistent modeling of nano-scale MOS devices with high- K gate dielectrics considering wave function penetration effect,” in *Progress in Solid State Electronics Research* (ISBN: 978-1-60021-852-1), James P. Martingale, Editor, Nova Science Publishers, NY, USA, pp. 167-185, 2008 (Invited).

(b) Journal Papers

38. M. A. Karim and **A. Haque**, “A physically based, accurate model for quantum mechanical correction to the surface potential of nano-scale MOSFETS,” *IEEE Transactions on Electron Devices* (in press), 2009.

37. A. I. Khan, M. K. Ashraf, and **A. Haque**, “Wave function penetration effects on ballistic drain current modeling and MOSFET scaling,” *Journal of Applied Physics*, Vol. 105, No. 6, pp. 064505(1-5), 2009.

36. M. K. Ashraf, A. I. Khan, and **A. Haque**, “Wave function penetration effects on ballistic drain current in double gate MOSFETs fabricated on (100) and (110) silicon surfaces,” *Solid-State Electronics*, Vol. 53, No. 3, pp. 271-275, 2009.

35. D. Plumwongrot, T. Maruyama, **A. Haque**, H. Yagi, K. Miura, Y. Nishimoto and S. Arai, “Polarization Anisotropy of Spontaneous Emission Spectra in GaInAsP/InP Quantum-Wire Structures,” *Japanese Journal of Applied Physics*, Vol. 47, Part 1, No. 5A, pp. 3735-3741, 2008.

34. A. M. Sonnet, M. A. Khayer and **A. Haque**, “Analysis of compressively strained GaInAsP/InP quantum wire electro-absorption modulators,” *IEEE Journal of Quantum Electronics*, Vol. 43, No. 12, pp. 1198-1203, 2007.

33. M. Itrat B. Shams, K. M. Masum Habib, Q. D. M. Khosru, A. N. M. Zainuddin and **A. Haque**, “On the physically based compact gate C-V model for ultrathin gate dielectric MOS devices using the modified Airy function approximation,” *IEEE Transactions on Electron Devices*, Vol. 54, No. 9, pp. 2566-2569, 2007.

32. F. Ferdous and **A. Haque**, “Effect of elastic strain redistribution on electronic band structures of compressively strained GaInAsP/InP membrane quantum wires,” *Journal of Applied Physics*, Vol. 101, No. 9, pp. 093106 (1-5), 2007.

31. A. N. M. Zainuddin and **A. Haque**, “An analytical model for electrostatics of strained-Si n-type metal-oxide-semiconductor devices,” *Semiconductor Science and Technology*, Vol. 22, No. 2, pp. 125-127, 2007.

30. M. A. Khayer and **A. Haque**, “Analysis of the linewidth enhancement factor (α -factor) in compressively strained InGaAsP quantum wire lasers,” *Journal of Applied Physics*, Vol. 100, No. 11, pp. 113108(1-6), 2006.

29. F. Ferdous and **A. Haque**, “Elastic strain relaxation in GaInAsP/InP membrane quantum wire lasers,” *Semiconductor Science and Technology*, Vol. 21, No. 12, pp. 1600-1604, 2006.

28. A. E. Islam and **A. Haque**, “Accumulation gate capacitance of MOS devices with ultra-thin high- K gate dielectrics: modeling and characterization,” *IEEE Transactions on Electron Devices*, Vol. 53, No. 6, pp. 1364-1372, 2006.

27. A. N. M. Zainuddin and **A. Haque**, “Threshold voltage reduction in strained-Si/SiGe MOS devices due to a difference in the dielectric constants of Si and Ge,” *IEEE Transactions on Electron Devices*, Vol. 52, No. 12, pp. 2812-2814, 2005.

26. **A. Haque**, T. Maruyama, H. Yagi, T. Sano, P. Dhanorm and S. Arai, “Anomalous in-plane polarization dependence of optical gain in compressively strained GaInAsP/InP quantum wire lasers,” *IEEE Journal of Quantum Electronics*, Vol. 40, No. 9, pp. 1344-1351, 2004.

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24. M. M. A. Hakim and **A. Haque**, “Accurate modeling of gate capacitance in deep submicron MOSFETs with high- K gate-dielectrics,” *Solid-State Electronics*, Vol. 48, No. 7, pp. 1095-1100, 2004.

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20. M. M. A. Hakim and **A. Haque**, "A computationally efficient quantum-mechanical technique to calculate the direct tunneling gate current in metal-oxide-semiconductor structures," *Journal of Applied Physics*, Vol. 94, No. 3, pp. 2046-2052, 2003.
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12. A. Rahman and **A. Haque**, "A study into the broadening of quantized inversion layer states in deep submicron MOSFETs," *Solid-State Electronics*, Vol. 45, No. 5, pp. 755-760, 2001.
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5. **A. Haque** and A. N. Khondker, "On the conductance and the conductivity of disordered quantum wires," *Journal of Applied Physics*, Vol. 80, No. 7, pp. 3876-3880, 1996.
4. **A. Haque** and A. N. Khondker, "Disorder induced enhancement of the quantum size effects in quantum wires with a tunnel barrier," *Physical Review B*, Vol. 54, No. 7, pp. 5016-5019, 1996.

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(c) Conference Papers

35. M. A. Karim and **A. Haque**, "On the Physically Based, Quantum Mechanical Correction to the Accumulation Surface Potential of Nano-Scale MOSFETs", in *the Proceedings of the IEEE International Conference on Electron Devices and Solid-State Circuits (EDSSC)*, Xian, China, 25-27 November 2009 (paper ID # 01-046).
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33. M. A. Karim and **A. Haque**, "A comparison of the quantum mechanical corrections in surface potential based MOSFET compact models," in *the Proceedings of the 5th International Conference on Electrical and Computer Engineering (ICECE 2008)*, Dhaka, Bangladesh, 20-22 December 2008, pp. 144 – 147.
32. S. Jahangir, Q. D. M. Khosru and **A. Haque**, "Effect of gate bias on channel in depletion all-around operation of the SOI four-gate transistor," in *the Proceedings of the 5th International Conference on Electrical and Computer Engineering (ICECE 2008)*, Dhaka, Bangladesh, 20-22 December 2008, pp. 953 – 957.
31. M. I. B. Shams, Q. D. M. Khosru and **A. Haque**, "Gate C-V characteristics of Si MOSFETs with uniaxial strain along <110> direction," in *the Proceedings of the 5th International Conference on Electrical and Computer Engineering (ICECE 2008)*, Dhaka, Bangladesh, 20-22 December 2008, pp. 434 – 437.
30. **A. Haque** and M. I. Raza, "Necessity of paradigm shift in the teaching of engineering in Bangladesh," in *the Proceedings of the National Symposium on Engineering and Technological Education (NSET)*, BUET, Dhaka, Bangladesh, 29 December 2007, pp. 80-84.
29. A. I. Khan, M. K. Ashraf and **A. Haque**, "Influence of wave function penetration on short channel effects in nanoscale double gate MOSFETs," in *the Proceedings of the 2007 IEEE International Conference on Electron Devices and Solid State Circuits (EDSSC2007)*, Tainan, Taiwan, 20-22 December, 2007, pp. 109-112.
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