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Proceedings of 9th International Conference on Electrical and Computer Engineering, ICECE 2016  
 13 February 2017, Article number 7853962, Pages 483-486  
 9th International Conference on Electrical and Computer Engineering, ICECE 2016; ECE Building, Bangladesh  
 University of Engineering and Technology Dhaka; Bangladesh; 20 December 2016 through 22 December 2016;  
 Category number CFP1668A-ART; Code 126494

## Optimization of CNFET Op amp for high frequency operation in Sub-10-nm node (Conference Paper)

Rafique, M.Z.E. [✉](#), Mahmud, A., Mominuzzaman, S.M.

Department of Electrical and Electronic Engineering, Bangladesh University of Engineering and Technology (BUET), Dhaka, Bangladesh

### Abstract

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This paper presents optimization of various parameters of carbon nanotube field effect transistor (CNFET) based op amp in sub-10 nm node for high frequency operation. Parameters such as, channel length, gate oxide thickness, gate dielectric constant, spacer doping, spacer dielectric constant and pitch, are optimized. For high frequency operation of op amp, optimum values of CNFET parameters are found to be 10 nm channel length, 10 dielectric constant of gate oxide, 3 nm gate oxide thickness, 5 nm pitch, zero source/ drain doping concentration, 4 dielectric constant of spacer oxide. Performance of CNFET op amp incorporating these optimum values is investigated and compared with previous work. Obtained results reveals significant differences among previously designed Si CMOS op amp, 32 nm CNFET and the sub-10-nm CNFET op amp investigated here. © 2016 IEEE.

### Author keywords

Carbon nanotube field effect transistor (CNFET) Channel length Gate oxide thickness Spacer dielectric

### Indexed keywords

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controlled terms:

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