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Module Title	Physical Electronics, Semiconductor Devices		
Research Interests	<p><b>MOS Devices and Physics:</b> Focus on “the degradation mechanisms of extremely thin SiO<sub>2</sub>”, “high-k gate oxide”, and “reliability of MOS devices”.</p> <p><b>DNA Nanotechnology:</b> Focus on the fabrication of “nano-junction devices”, “highly ordered nanoparticles and conducting nanowires” using DNA molecules, DNA memory, etc.</p> <p><b>Display:</b> Focus on the fabrication and characterization of OLEDs with nontoxic quantum-dots.</p>		
Work Experience	Professor, College of Information and Communication Engineering & SKKU Advanced Institute of Nanotechnology (SAINT), Sungkyunkwan University		
Education Experience	1979-1986 B.S., Department Electronic Engineering, Sungkyunkwan University 1986-1990 M.S., Department of Electrical and Computer Engineering, University of Houston (TX, USA) 1990-1994 Ph.D., Department of Electrical and Computer Engineering, University of Houston (TX, USA)		
Education and Teaching Experience	Professor at Sungkyunkwan University (SKKU) since 1995		
Professional Activities	Dean, College of Information and Communication Engineering, SKKU Department Chairman, SKKU Advanced Institute of Nanotechnology (SAINT)		
Academic Achievements	<p><b>Selected Publications:</b></p> <ol style="list-style-type: none"><li>1. J. Kim et al., “Analysis of asymmetrical hysteresis phenomena observed in TMD-based field effect transistors”, AIP Advances, vol. 8, pp. 095114-1 ~ 095114-9, 2018</li><li>2. S. Park et al., “Roles of residual stress in dynamic refresh failure of a buried-recessed-channel-array transistor (B-CAT) in DRAM”, IEEE Electron Device Letters, vol. 37, no. 7, pp. 859-861, 2016</li><li>3. D. -H. Kang et al., “Ultra-low doping on two-dimensional transition metal dichalcogenides using DNA nanostructure doped by a combination of lanthanide and metal ions”, Scientific Reports, vol. 6, Article # 20333, 2016</li><li>4. J. Lee et al., “Assembling CdSe/ZnS core-shell quantum dots on localized DNA nanostructures”, RSC Adv., vol. 4, no. 95, pp. 53201–53205, 2014</li><li>5. J. Lee et al., “Coverage control of DNA crystals grown by silica assistance”, Angewandte Chemie, vol. 50, pp. 9145-9149, April 2011</li><li>6. H. J. Kim et al., “Selective formation of a latticed nanostructure with the precise alignment of DNA-templated gold nanowires”, Langmuir, vol. 26, pp. 18315-18319, October 2010</li><li>7. M. Shin et al., “Formation of λ-DNA’s in parallel- and crossed-line arrays by molecular combing and scanning-probe lithography”, Nano Letters, vol. 6, no. 7, pp. 1334-1338, 2006</li></ol>		

	<p>8. D. J. Kang et al., "Structural and electrical characteristics of RF magnetron sputtered ZnO films", Thin Solid Films, vol. 475, no. 1-2, pp. 160-165, 2005</p> <p>9. Y. Roh et al., "Analysis of charge components induced by Fowler-Nordheim tunnel injection in silicon oxides prepared by rapid thermal oxidation", J. of Electrochemical Society, vol. 142, pp1015-1020, 1995</p>
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