

The 19th U.S.–Korea Forum on Nanotechnology

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Dr. Jiyoung Kim received his B.S. and M.S. in Metallurgical Engineering from Seoul National University and his Ph.D. in Materials Science and Engineering from the University of Texas at Austin. He was awarded the prestigious Korean Government Scholarship for Study Overseas. After working as an Integration Engineer at Texas Instruments, Dr. Kim worked as a faculty member at Kookmin University (Seoul, Korea) (1996-2005). In 2005, Dr. Kim joined UT-Dallas as an associate professor and was promoted to a full professor. Since 2000, Dr. Kim has led groundbreaking research on atomic-scale semiconductor processing, materials, devices, and characterization, with a focus on atomic layer deposition (ALD). He introduced innovative *in-situ* characterization techniques, including XPS, FT-IR, and electrical probing, to better understand reaction mechanisms and interface formation during ALD processes. Dr. Kim has pioneered the development of advanced ALD processes using a variety of new precursors, including organometallic compounds, high-purity ozone, hydrogen peroxide, hydrazine, and nitrogen radicals. These innovations have enabled low-temperature processes, improved dielectric quality, and enhanced conformality, particularly in complex 3D structures. His research encompasses the development of novel organic-inorganic materials for EUV photoresists and semiconductor applications. His research has received substantial support from both government agencies and the semiconductor industry, including NSF, DoD, DoE, Texas State, and the Korean Government, as well as from semiconductor consortia like SRC (USA) and COSAR (Korea). His research has been directly supported by 20 companies worldwide, including TI, Qorvo, Samsung, SK-hynix, Intel, Dow, TMEIC, Air Liquide, Lam, Rasirc, and others. Dr. Kim has published over 350 peer-reviewed journal articles and conference papers, with an H-index of 58 and more than 15,000 citations (Google Scholar). He has also given more than 100 invited talks and colloquia at professional society meetings, academic conferences, and industry events. Dr. Kim is actively involved in the professional community, serving as the co-chair of the 2013 ALD Conference in San Diego (with over 700 attendees), as well as a program committee member since 2011. He was also the vice-chair of the 2009 IEEE ISAGST in San Francisco and has contributed to various international society committees, including IEEE-EDS, TMS, AVS, UKC, and MNC etc.