<< 수상강연 >>

Nano Convergence Systems for Smart Living

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Today, engineers are facing new set of challenges that are quite different from the conventional ones. Information technologies are rapidly commoditizing while the paths beyond the current roadmaps became uncertain as various technologies have been pushed to their limits. Along with these changes in IT ecosystems, grand challenges such as global security, health, sustainability, and energy increasingly require trans-disciplinary solutions that go beyond the traditional arenas in STEM (Science, Technology, Engineering and Mathematics). Addressing these needs is shifting engineering education and research to a new paradigm where the emphasis is placed on the consilience for holistic and system level understanding and the convergence of technology with AHSD (arts, humanities, social science, and design). At the center of this evolutionary convergence, nanotechnologies are enabling novel functionalities such as bio-compatibility, flexibility, low power, and sustainability while on a mission to meet scalability and low cost for smart electronics, u-health, sensing networks, and self-sustainable energy systems.

This talk introduces the efforts of convergence based on the emerging nano technology tool sets in the newly launched School of Integrated Technology and the Yonsei Institute of Convergence Technology at Yonsei International Campus. While the conventional devices have largely depended upon the inherent material properties, the newer devices are enabled by nanoscale dimensions and structures in increasingly standardized and scalable fabrication platform. Localized surface plasmon resonance in 0 dimensional nano particles and structures leads to subwavelength confinement and enhanced near-field interactions enabling novel field of metal photonics for sensing and integrated photonic applications [1,2]. Unique properties offered by 1 dimensional nanowires and 2 dimensional materials and structures can enable novel electronic, photonic, nano-bio, and biomimetic applications [3-5]. These novel functionalities offered by the emerging nanotechnologies are continuously finding pathways to be part of smart systems to improve the overall quality of life.

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