
Electrical & Computer Engineering
S E M I N A R
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Relaying & Cognitive Radio for Wireless Communications

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Abstract—Mobile data traffic is growing rapidly as the number of smart devices, such as smartphones and tablets, increases. To meet the quality of service (QoS) for them, it requires higher reliability and spectral efficiency in next generation wireless communications. Relaying and cognitive radio are candidate technologies to achieve them. Relaying improves reliability by providing additional paths for data transmission. It has been adopted in the standards of wireless cellular networks such as LTE-Advanced and WiMAX2. Cognitive radio improves spectral efficiency in which an unlicensed user utilizes the spectrum of a licensed user opportunistically. It has been adopted in the standard of wireless regional area network (WRAN) such as IEEE 802.22.

In this talk, the concept of relaying and cognitive radio for wireless communications is introduced. A new transmission protocol for multi-hop networks and the performance analysis of asynchronous cognitive radio networks are presented.

Bio—Jae Hong Lee received BS and MS degrees from Seoul National University, Korea, and PhD from the University of Michigan at Ann Arbor in 1986. He was with AT&T Bell Laboratories as Member of Technical Staff from 1981 to 1982. He joined Seoul National University in 1987 where he is currently a professor and served as Chairman of EECS Department and Director of Institute of New Media and Communications.

His research activities are in physical layer wireless communications such as MIMO, OFDM cooperative diversity and cognitive radio, and their applications to B4G/5G wireless systems. He was principal investigator in communications for ITS Grand Design Project of the Korean government from 1994 to 1997. His laboratory was designated as a National Research Laboratory by Korean Ministry of Science and Technology.

He was President of IEEE Vehicular Technology Society, Institute of Electronics Engineers of Korea, and Korean Society of Broadcast Engineers. He is an IEEE Fellow and IEEE VTS Distinguished Lecturer. He is a Member of the Korean Academy of Science and Technology and the National Academy of Engineering of Korea.

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