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Title: An effective interference suppression technique for a user-centric ultra-dense distributed MIMO towards realizing Beyond 5G systems

Abstract: The mobile data traffic is ever increasing. Due to the limited available radio bandwidth, the spectrum efficiency of mobile radio access network (RAN) needs to be significantly improved even after the deployment of the 5th generation (5G) systems. An effective approach is to utilize a large-scale multi-user MIMO signal processing. However, this approach requires a prohibitively high computational complexity and thus, may not be practical. In order to reduce the complexity to a practical level, a number of antennas are distributed over the communication service area instead of co-locating all of them at base station (BS) and virtual user-centric small-cells called user clusters to each of which the small-scale multi-user MIMO is applied are adaptively formed according to the user distribution. However, in return, the achievable spectrum efficiency improvement is limited by severe interference among neighbor user clusters. An introduction of interference suppression technique becomes crucial. In this talk, we will present the interference suppression technique suitable for the above user-centric ultra-dense distributed MIMO and show its effectiveness by computer simulation.

Biography: Fumiyuki Adachi joined NTT in 1973 and conducted various types of research of digital cellular mobile communications. From 1992 to 1999, he was with NTT DoCoMo, Inc., where he led a research group on Wideband CDMA for 3G systems. Since January 2000, he has been with Tohoku University, Sendai, Japan. Currently, he is a Professor Emeritus of Tohoku University and is leading a resilient wireless communication research group aiming at Beyond 5G systems as a Specially Appointed Research Fellow at International Research Institute of Disaster Science. His research interests are in the area of wireless signal processing and networking. He is an IEEE Life Fellow and an IEICE Life Fellow. He is a recipient of the IEEE Vehicular Technology Society Avant Garde Award 2000, IEICE Achievement Award 2002, Thomson Scientific Research Front Award 2004, Prime Minister Invention Award 2010, IEEE VTS Stuart Meyer Memorial Award 2017, IEEE ComSoc RCC Technical Recognition Award 2017, etc.