**Efficiency Revolution of Future Base Station Antennas**

***Abstract*―**With the rapid increasing demand of wireless networks, the base station antenna is experiencing an efficiency revolution to achieve the best coverage and capacity. First of all, the total RF efficiency of the base station antenna is considered in terms of antenna efficiency, feeder efficiency and the remote radio unit (RRU) efficiency. Then, the radiation pattern of the antenna array should be specially designed to increase the sector power ratio (SPR), such that most of the useful energy is transmitted to the target coverage area. Finally, the ultra-precision array (UPA) technology is briefly introduced for high beamforming efficiency. The magnitude and phase control of the radiation pattern and excitation of the antenna elements is crucial to achieve ultra-precision high-gain beams with low sidelobe levels. To realize the extreme efficiency for future base station antennas, several challenging research topics will be presented for discussion.

**Speaker:**

Mr. Weihong Xiao received the Bachelor and Master degrees from the University of Electronic Science and Technology of China (UESTC), Chengdu, China, both in Electronic Engineering, in 2003 and 2006 respectively.

Mr. Xiao has been with Huawei Technologies since 2006, where he is currently the CTO for Base Station Antenna. Under his leading of the antenna R&D, Huawei has launched a series of star products (e.g. Huawei BladeAAU Pro, packaging the iF Design Award, Red Dot Design Award, and Best Mobile Network Infrastructure Award), rising as the Market Leader in base station antennas. His research interests include the theory and design of antennas and arrays for base stations, and the integration of antenna, filter and wireless algorithm for 5G mobile communications. He holds over 130 granted and pending US/WO/PCT/CN patents.