

Channel modeling supported by the physical laws of wave propagation and measurements

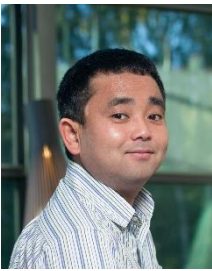
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Abstract

Channel modeling for radio communications evolves in various dimensions, e.g., frequency, space, and time-dependent is an encouraging insight that allows us to model channels across the vast range of frequencies. In this talk, we first review the frequency-dependency of wave propagation mechanisms, i.e., reflection, scattering, diffraction, and penetration. We then introduce a few experimental evidences of frequency-dependency of measured radio channels that support the channel modeling. Once supported by experimental evidence, channel modeling based on the physical laws of wave propagation becomes a powerful tool to serve various dimensions.

Bio



Katsuyuki Haneda is an associate professor in the Aalto University, Finland. He has been an associate editor of the IEEE Transactions on Antennas and Propagation for 2012-2016, and of an editor of the IEEE Transactions on Wireless Communications for 2013-2018. He has been an active member of a number of European Cooperation in Science and Technology (COST) Actions, e.g., CA15104 "Inclusive Radio Communication Networks for 5G and beyond (IRACON)", where he is a co-chair of a disciplinary working group on radio channels. His current research activity includes radio frequency instrumentation, measurements and modeling, millimeter-wave radios, in-band full-duplex radio technology and radio applications in medical and healthcare scenarios.