

Seminario Dott. Giovanni Geraci, Bell Labs Nokia (Ireland)
Dipartimento di Energia, Ingegneria dell'Informazione e Modelli Matematici (DEIM)
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Massive MIMO Unlicensed: Enhanced coexistence and spatial reuse

ABSTRACT. In this talk, we will introduce a massive MIMO unlicensed (mMIMO-U) system, where massive multiple-input multiple-output cellular base stations operate in unlicensed bands. We will describe the key procedures required at each base station to guarantee coexistence with nearby Wi-Fi devices operating in the same band. In particular, spatial reuse can be enhanced by actively suppressing interference towards neighboring Wi-Fi devices. Wi-Fi interference rejection can also be performed during an enhanced listen-before-talk phase. We will show that the so-designed mMIMO-U operations allows simultaneous cellular and Wi-Fi transmissions by keeping their mutual interference below the regulatory threshold.

GIOVANNI GERACI was born in Sicily, Italy. He received the B.Sc. degree in telecommunications engineering from Università degli Studi di Palermo, Italy, in 2005, and the M.Sc. degree in telecommunications engineering from Politecnico di Milano, Italy, in 2009. He earned the Ph.D. degree in electrical engineering from the University of New South Wales, Australia, in 2014. He is currently a Research Scientist at Bell Labs Nokia, Ireland. Prior to joining Bell Labs, he was a Postdoctoral Fellow with the Singapore University of Technology and Design, Singapore. He has also held research appointments at Alcatel-Lucent, Italy, at Supélec, France, and at the University of Texas at Austin, USA. His research interests cover various aspects of wireless communications, networking, and signal processing.