Title: Powering Cellular Networks with Renewable Energy Sources

Abstract:

Power consumption has become one of the key issues for today's mobile network operators. The use of renewable energy sources is emerging as one of the most promising approaches to drastically reduce the carbon footprint and the energy cost of their networks, and in particular of base stations. The development of innovative base station technologies will bring during the next decade important improvements, with a positive impact on the reduction of the power consumption of base stations, as reflected in a recent power model of next-generation LTE base stations. This fact, coupled with expected improvements in renewable energy technologies will make powering cellular networks with renewable energy sources both feasible and cost-effective. In this talk, the dimensioning of photovoltaic (PV) systems to power LTE macro base stations is discussed, quantifying the achievable carbon footprint and cost benefits.

Bio:

Marco Ajmone Marsan is a Full Professor of Telecommunications at the Politecnico di Torino in Italy, and a part-time Research Professor at the IMDEA Networks Institute in Spain. He served as the Vice-Rector for Research, Innovation and Technology Transfer at the Politecnico di Torino from 2002 to 2009. From September 2002 to March 2007 he was the Director of the Institute for Electronics, Information and Telecommunications Engineering of the National Research Council of Italy. He was the chair of the Italian Group of Telecommunications Professors, and the Italian Delegate in the ICT Committee and in the ERC Committee of the 7th Framework Programme of the EU.

The research activity of Marco Ajmone Marsan has focused on the performance evaluation of networks and protocols. His main present research interests are in energy-efficient networking, and in the applications of ICT for energy efficiency, as well as in crowdsourcing systems. He has published over 300 papers in the most important journals and conferences of the domains of networking and performance evaluation, as well as two books. He has been a member of the editorial board of the ACM/IEEE Transactions on Networking, and he is on the editorial board of the journals Computer Networks, and Performance Evaluation of Elsevier, and of the ACM Transactions on Modeling and Performance Evaluation of Computing Systems. He was the general chair or technical program chair of several important conferences in his field, and the general chair of INFOCOM 2013.

Marco Ajmone Marsan is a Fellow of IEEE, and a member of the Turin Academy of Sciences. He is qualified as "ISI highly cited researcher".