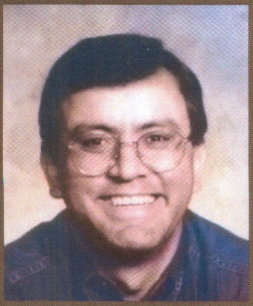
同济高等讲堂院级第 20 讲

Lecture at Tongji University by Ender Ayanoglu

Topic: Energy and Spectral Efficiency in Next-Generation Cellular Networks



Bio:

Ender Ayanoglu received the M.S. and Ph.D. degrees from Stanford University, Stanford, CA in 1982 and 1986, respectively, in electrical engineering. He was with Bell Laboratories Holmdel, NJ until 1999. From 1999 until 2002, he was a Systems Architect at Cisco Systems, Inc., San Jose, CA. Since 2002, he has been a Professor in the Department of Electrical Engineering and Computer Science, University of California, Irvine, Irvine, CA, where he served as the Director of the Center for Pervasive Communications and Computing and held the Conexant-Broadcom Endowed Chair during 2002- 2010. From 1993 until 2014 Dr. Ayanoglu was an Editor, and since January 2014 is a Senior Editor of the IEEE Transactions on Communications. He served as the Editor-in-Chief of the IEEE Transactions on Communications from 2004 to 2008. Since 2017, he is serving as the founding Editor-in-Chief of the IEEE Transactions on Green Communications and Networking. From 1990 to 2002, he served on the Executive Committee of the IEEE Communications Society Communication Theory Committee, and from 1999 to 2001, was its Chair. Dr. Ayanoglu is the recipient of the IEEE Communications Society Stephen O. Rice Prize Paper Award in 1995 and the IEEE Communications Society Best Tutorial Paper Award in 1997. He has been an IEEE Fellow since 1998.

Abstract:

In this talk, we will first discuss the importance of energy efficiency (EE) in next-generation multi-cell heterogenous networks (HetNets). We will than discuss the tradeoff of EE and and spectral efficiency (SE) in multi-cell HetNets.

Our objective is to maximize both EE and SE of the network while satisfying the rate requirement of users. We use multi-objective optimization techniques to define the objective function. We propose a three-stage algorithm. First, we select the cell-center radius for the fractional frequency reuse (FFR) method. Second, we assign the frequency resources to satisfy the rate requirements of users and maximize the objective function. Third, the power allocation subproblem is solved by using the Levenberg-Marquardt method. Our numerical results show that a Pareto-optimal solution exists for EE and SE. We present results for different rate constraints.

时间：2019 年 5 月 24 日(周五) 15:30-16:30　　**地点：**智信馆

语言：英文　　**主办单位：**电子与信息工程学院