



## Wireless Engineering Research and Education Center

### **Efficient Information Flow on a Network: An Introduction to Network Coding**

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#### **Abstract**

Network coding is a newly developed field of study in the scope of information theory. Started only in 2000 by Ahlswede et al., network coding studies the problem of maximizing the throughput of a multicast network by processing data at each node in the network. It is shown that, unlike store-and-forward routing, network coding can achieve the capacity of a multicast network. Apart from throughput improvement, network coding can also increase the robustness, security and adaptability of the network. A brief review of the history of network coding will be given in this talk. The essence and basics of it will then be discussed. Applications of network coding and possible future research topics in the field will be covered.

#### **Bio**

Fan Jiang received the B. Sc. degree in electrical engineering from the Central-South University of Technology, Changsha, Hunan, China, in 1989, and the M. Sc. degree in electrical engineering and Ph.D. degree in engineering from the University of Nebraska – Lincoln, Lincoln, Nebraska, in 2001 and 2006, respectively. He worked as an electrical engineer and manager at the Wanbao Electrical Appliance Company, Zhuhai, Guangdong, China from 1989 to 1993. Since Aug. 2006, he has been working at the Electrical Engineering Department, Tuskegee University, Tuskegee, Alabama, as an assistant professor. His research interests are channel coding, wireless communications, and network coding.

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**235 BROUN HALL**