

TEXAS A&M  
UNIVERSITY at QATAR

ELECTRICAL ENGINEERING PROGRAM

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# Cooperative Communications

*A Seminar by Mr. Dieter Duyck*

PhD student at Ghent University

Wednesday, February 13

12:30 p.m. – 1:30 p.m.

A light lunch will be served at noon

Lecture Hall 144

Error rate performances and power savings are dramatically improved by the transmission of independent copies of the same signal, i.e., a technique referred to as transmit diversity. Spatial diversity obtained by the transmitter generally requires a MIMO (Multiple Input Multiple Output) system. However, many wireless devices have constraints in size or hardware complexity and can only have one antenna. Recently, a new network protocol called cooperative communication allows single-antenna devices in a multi-user environment to take advantage of the broadcast nature of wireless transmission. The idea is to generate a virtual multiple-antenna transmitter by using the antennas of other users to achieve the aimed diversity. This lecture presents an introduction to cooperative communications as well as a small case discussion.

*This lecture is part of **Electrify Your Education** colloquia series sponsored by the Electrical Engineering Program*

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