

*The Electrical and Computer Engineering Program presents
ECEN Seminar Series*

Perfect Secrecy in Bidirectional Relaying

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Lecture Hall 143

We consider compute-and-forward in bidirectional relaying, where a relay node wants to compute the XOR of two bits from two other nodes. In this scenario, the two nodes modulate their individual bits to integers and transmit them simultaneously. These integers get summed at the relay node. Is it possible to design the modulation such that the sum of the integers is independent of each of the bits? Can the sum still convey the XOR of the bits to the relay node? Can such a modulation be power-limited? We answer these questions in the affirmative and establish an achievable rate using lattice codes. (joint work with Navin Kashyap and Shashank V at the Indian Institute of Science, Bangalore)



Andrew Thangaraj received his B.Tech in Electrical Engineering from the Indian Institute of Technology (IIT), Madras, India in 1998 and a PhD in Electrical Engineering from the Georgia Institute of Technology, Atlanta, USA in 2003. He was a post-doctoral researcher at the GTL-CNRS Telecom lab at Georgia Tech Lorraine, Metz, France from August 2003 to May 2004. From June 2004, he has been with the Department of Electrical Engineering, IIT Madras, where he is currently an associate professor.

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