

Séminaire ICI : Zhi Ding

20 Janvier 2017, 14:00 – 15:30

Titre du séminaire et orateur

Joint Detection-Decoding under Polar Coded Retransmission in Wireless Communications.

Zhi Ding, UC Davis, CA, USA.

Date et lieu

Vendredi 20 janvier 2017, 14h.

[ENSEA](#), salle 384.

Abstract

Utilizing the concept of channel polarization, polar codes can provably approach near-capacity performance as forward error correction codes. Polar codes can be systematically constructed and facilitate low complexity encoding and decoding. Though specially designed for binary channels, polar codes have been investigated in applications involving more general channels. In this talk, we discuss the integration of polar codes in hybrid ARQ (HARQ) systems. To improve bandwidth efficiency, consider packet retransmissions without explicit training for channel estimations after training for channel estimation in the original packet transmission. In this partial channel state information (CSI) scenario, we can develop a joint signal detection and decoding receiver for polar coded HARQ. We show that a joint receiver can effectively utilize a linear programming algorithm to achieve competitive results with relatively low computational complexity. This concept can be further improved and generalized for broader communication systems including relay networks.