**Project name:**  Design of advanced LDPC codes

**Students:** Tzahi Ezra and Iska Tsubari

**Supervisor:** Rami Cohen

**Lab:** COMM

**Date:** October 2015

**Abstract**

The aim of this project is performance analysis of low-density parity-check (LDPC) codes for correcting errors that occur in data transmitted over the $q$-ary partial erasure channel (QPEC). This channel is an extension of the binary erasure channel (BEC), where partial information on the output is available. This channel mimics situations when current/voltage levels in measurement channels are partially known, due to high read rates or imperfect current/voltage sensing. The main advantages of LDPC codes are the existence of efficient decoding algorithms of linear complexity and performance close to channel capacity. We perform performance analysis of LDPC codes focusing on parameters that lead to successful correction of errors caused due to transmission over the $q$-ary partial erasure channel.
Some results


The QPEC decoding threshold for the (3,6) LDPC ensemble