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CIDMA CENTRO DE I&D EM MATEMÁTICA E APLICAÇÕES
CENTER FOR R&D IN MATHEMATICS AND APPLICATIONS

Systems and Control Group Seminar

March 11, 2026, 14:00

Mathematics Department, University of Aveiro

Room 11.2.6 (Sousa Pinto)

14:00 pm

Burst-Erasure Correction via Pseudo-MDP Convolutional Codes

Zita Abreu (University of Madeira and CIDMA) zita.abreu@ua.pt

Abstract: Convolutional codes work very well over erasure channels when low decoding delay is required. Maximum Distance Profile (MDP) convolutional codes can correct the largest possible number of erasures in fixed decoding windows, but their construction usually requires large finite fields and small parameters limit burst-erasure correction. We introduce Pseudo-MDP convolutional codes, which relax the MDP condition by requiring only some column distances to be optimal. This allows correction of large erasure bursts with low delay over smaller finite fields.

14:30 pm

Construction of LDPC convolutional codes with large girth from Latin squares

Elisa Junghans (TU Ilmenau, Germany) elisa.junghans@tu-ilmenau.de

Abstract: Low-density parity-check (LDPC) codes are known for their capacity approaching performance with message passing algorithms, as well as their low encoding and decoding complexity. For the decoding algorithms to perform well, it is desirable to maximize the girth of the associated Tanner graph. In this talk, a construction for periodically time-varying LDPC convolutional codes with girth up to 12 is presented. This construction depends only on a special class of orthogonal Latin squares and several well-determined lifting steps, which allows for a very compact representation and efficient storage of these codes.

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