



# 13<sup>th</sup> International Conference on Software, Telecommunications and Computer Networks

## SoftCOM 2005

September 15-17, 2005

Split (Croatia), Frapa marina

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## Special Session on RECENT ADVANCES IN LDPC CODES

**Chair: Franco Chiaraluce**

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### Call for Papers

Special Session on Recent Advances in LDPC Codes will be held September 15-17 in Split, Croatia (Frapa marina) in the frame of the 13th International Conference on Software, Telecommunications and Computer Networks (SoftCOM 2005), technically co-sponsored by the IEEE Communication Society (ComSoc).

Low Density Parity Check (LDPC) codes represent the "state-of-the-art" in the current scenario of forward error correcting (FEC) codes. They have been introduced by Robert Gallager, one of the fathers of the information theory, more than forty years ago, but they have been rediscovered only recently, thanks to the development of efficient techniques for their encoding and decoding. Decoding, in particular, is based on the basic principle of "belief propagation" that permits to attain performances comparable with, and often even better than, those of other turbo decoded schemes, while maintaining, however, a limited complexity. Because of their success, LDPC codes have been already included in the European standard for the second generation of Satellite Digital Video Broadcasting (DVB-S2), they are currently under investigation for the updating of many recommendations issued by the Consultative Committee for Space Data Systems (CCSDS), and their inclusion is foreseen in the channel coding section of many other widespread telecom applications, like wired and wireless digital communication networks.

A lot of topics, however, are still open in regard to the analysis and characterization of LDPC codes; among them: design of efficient encoding techniques, with very low complexity, evaluation of the minimum distance properties of these codes, and their impact on the asymptotic behaviour, adaptation to multi-level modulation schemes, and others.

This Special Session wants to be a fruitful occasion for discussion among researchers and practitioners working on LDPC codes. Contributions are expected facing either theoretical or practical aspects concerning the analysis and usage of these codes in practical implementations. Contributions from industry and manufacturers will be particularly welcome, with the aim to provide a substantial and up-dated measure of the most recent realizations, that have taken advantage of the progress in FPGA and ASIC technology.

Accepted papers will be published in the conference proceedings, and authors of selected best papers will be invited to submit an extended version of their manuscripts for publication in a special issue of the Journal of Communications Software and Systems (JCOMSS).

A short list of topics that shall be faced in the Special Session is as follows:

- \* Analysis and simulation of LDPC codes
- \* Design of LDPC codes
- \* Encoding/decoding methods for LDPC codes
- \* Complexity evaluation of LDPC codes
- \* Algorithms for efficient estimation of the minimum distance (floor) properties of LDPC codes
- \* Practical implementation of LDPC codes
- \* FPGA and ASIC realizations of LDPC encoder and decoder cores
- \* Utilization of LDPC codes in wireless applications
- \* Impact of LDPC codes on the standards for telecommunications

### IMPORTANT DATES

**Complete manuscript due June 1, 2005**  
**Notification of acceptance July 1, 2005**  
**Camera-ready manuscript Aug.15, 2005**

SoftCOM 2005 technically co-sponsored by the IEEE ComSoc, will be held September 15-17 in Split, Croatia (Frapa marina). Frapa marina is a golden spot on the Croatian Adriatic coast, 20 km from the Split airport, the starting point for the most beautiful touristic destinations such as Trogir, a two millennia town monument under protection of UNESCO, Primošten peninsula town, the Kornati archipelago National Park with hundreds small islands – unique and luxurious in its beauty, the Krka river and Skradinski buk National Park, Solin town with ancient Salona, Split town the business, political and university regional center, an 1700 year old town with Diocletian Palace monument. One of the most interesting social event this year will be sailing from Frapa marina to the Split harbor with guided tour of the 1700 old Diocletian Palace and attending the special program for SoftCOM participants.

More information about the Conference including details on the submission process and authors kit is available on the website:

<http://www.fesb.hr/SoftCOM>

**Conference Secretary:** *Mladen Russo, University of Split, Croatia (softcom@fesb.hr)*