

**INFSO-ICT-216203 DAVINCI****D7.3.2*****Winter School / Workshop***

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**Abstract:** This document describes the actions undertaken towards the organization of deliverable D7.3.2.

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**Disclaimer:**

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## 1. Introduction

This document describes the initiatives towards the organization of deliverable D7.3.2 “Winter School/Workshop”. Since the main item of this deliverable is the workshop itself, this document is very brief, summarizing the current status of all initiatives.

### 1.1 Description of selected approach

In order to fulfil the objective of disseminating the key outcomes of the DAVINCI project and to reach a significant number of researchers, developers and managers in the scientific, technical and industrial community, a three-fold approach has been chosen, consisting of the following action items:

1. A Special Session on Modern Channel Coding at the European Wireless Conference in April 2010.
2. A hardware demonstration at the Future Network & Mobile Summit
3. Six papers and presentations at the Future Network & Mobile Summit

While the first and the last action item address mainly the academic community, the second item is intended to also attract the interest of relevant industry.

Other approaches have been discussed, including a pre-conference workshop at the Future Network & Mobile Summit 2010. However, this conference coincides this year with the IEEE International Symposium on Information Theory, which will attract a great part of our target audience. Therefore, it was deemed very difficult to attract enough participants for a coding workshop at the same date. By covering the two major European conferences on wireless communication, we assure to reach a wide audience.

## 2. Special Session

A special session with invited, peer-reviewed papers has been organized in order to attract a high number of participants of the European technical/scientific community. The European Wireless Conference has been identified as an attractive event, which comes at the right time and offers a high technical level, with reputed keynote speakers. A special session at this conference has therefore been identified to reach a wide, European audience.

The technical programme of the session includes both speakers from inside and outside the DAVINCI project and is summarized in the following list:

1. “Error Bounds for Decode-and-Forward Relaying”  
*Alexandre Graell i Amat, Ingmar Land, Lars K. Rasmussen*
2. “Reduced-Latency Stochastic Decoding of LDPC Codes over GF(q)”  
*Gabi Sarkis and Warren J. Gross*
3. “Some New Results on LT and Raptor Codes”  
*Auguste Venkiah and Charly Poulliat*
4. “Optimal Time and Rate Allocation for a Network-coded Bidirectional Two-Hop Communication”  
*Christoph Hausl, Onurcan Iscan, Francesco Rossetto*
5. “Outage Threshold of Some LDPC Codes For Transmission over Non-Ergodic Block-Fading Channels”  
*Iryna Andriyanova, Joseph J. Boutros, Ezio Biglieri*

The Special Session is announced at the conference website:  
[http://www.ew2010.org/technical\\_program/invited\\_sessions.php](http://www.ew2010.org/technical_program/invited_sessions.php)

## 3. Hardware Demonstration at Future Network & Mobile Summit

The DAVINCI project will organize a demonstration at the Future Network & Mobile Summit 2010 to be held on 16 - 18 June 2010 in Florence, Italy. The goals of the demonstration are the following:

To demonstrate how the non-binary LDPC coding scheme developed in the project can be implemented using modern semiconductor technology. This has been a key activity in DAVINCI. Partners have analyzed in detail the implementability of the decoder in three different platforms:

- On Field Programmable Gate Arrays (FPGA)
- On an Application Specific Instruction Set Processor (ASIP)
- On an Application Specific Integrated Circuit (ASIC)

The FPGA implementation will be demonstrated using a wireless platform using the IEEE802.11a/g physical layer interfaced with a near real-time decoder implemented in an FPGA. The ASIC implementation will not be demonstrated but its architecture, details of implementation and performance will be provided on a poster. In addition, the DAVINCI partners will expose posters highlighting the main features of the non-binary LDPC coding scheme and the main achievements of the project.

#### **4. Dissemination of Technical Results**

The following papers have been accepted at the Future Network & Mobile Summit in June 2010. They cover many aspects of the technical work which has been carried out during the project and thus give a good overview of the project.

1. G. Bacci, M. Della Maggiora, M. Luise, "Code-Aided Iterative Channel Estimation for OFDM Signals with Non-Binary LDPC Codes"
2. I. Gutierrez, A. Mourad, J. Bas, S. Pfletschinger, G. Bacci, A. Bourdoux, H. Gierszal, "DAVINCI Non-Binary LDPC codes: Performance and Complexity Assessment"
3. A. Flizikowski, M. Majewski, M. Przybyszewski, W. Hołubowicz, "QoE assessment of VoIP over IEEE 802.16 networks with DaVinci codes using E-model"
4. S. Pfletschinger, M. Navarro, "Link Adaptation with Retransmissions for Non-Binary LDPC Codes"
5. A. Mourad, I. Gutierrez, "System Level Evaluation of DAVINCI Non-Binary LDPC codes"
6. G. Bocolini, I. Fijalkow, "Adaptive multilevel waterfilling for non-binary LDPC coded OFDM"