

Report Update on Activities by Working Group 1 and 4

In the past 6 months there were a lot of activities in the framework of COST among researchers from working group 1 and 4.

Working group 1, is concerned with Bounds on the Size of Network Codes. Working group 4, is concerned with Construction of Network Codes and Grassmannian Codes.

STSM Collaborations:

1. From September 1 to November 30, 2015, Emilio Suarez Canedo and Roland Barrolleta from Autonomous University of Barcelona visited the group of Professor Storme in Ghent with an STSM. Together with the postdocs Maarten De Boeck and Peter Vandendriessche Constant dimension codes in $V(n, q)$ consisting of k -dimensional vector subspaces, pairwise intersecting in t -dimensional spaces were studied. The researchers achieved several interesting results.
2. From 22/9/2014-4/10/2014 Jens Zumbraegel from Dresden University of Technology, Germany, visited the group of Professor Skachek at the University of Tartu, Estonia. The results of the STSM were presented at the ALCOMA conference by Jens Zumbraegel. The title was: On bounds for batch codes, ALCOMA, Germany, March 2015.
3. From November 23, 2014 until December 19, 2014 Prof. Dr. Camilla Hollanti, Dr. Ragnar Freij and Mr. Amaro Barreal all from the Dept. of Mathematics and Systems Analysis at Aalto University, Helsinki, Finland, visited the Mathematics Institute, University of Zurich, Zurich, Switzerland.

Published Papers:

1. Michael Kiermaier and Rainhard Laue Derived and residual subspace designs *Advances in Mathematics of Communication* 9, 1 (2015-2), 105-115.
<http://dx.doi.org/10.3934/amc.2015.9.105>
2. Thomas Honold, Michael Kiermaier and Sascha Kurz Optimal binary subspace codes of length 6, constant dimension 3 and minimum subspace distance 4 *Contemporary Mathematics* 632 (2015), ISBN 978-0-8218-9860-4, 157-176.
<http://dx.doi.org/10.1090/conm/632/12627>
3. Michael Kiermaier and Mario Osvin Pavcevic Intersection numbers for subspace designs accepted for publication in *Journal of Combinatorial Designs* published online:
<http://dx.doi.org/10.1002/jcd.21403>

This publication is a result of the STSM to Zagreb in spring 2013

Preprints:

1. I. Kujas and V. Skachek, “Data Dissemination Problem in Wireless Networks”, IEEE International Symposium on Information Theory (ISIT 2015), Hong Kong, SAR, June 2015.
2. Netanel Raviv, Antonia Wachter-Zeh: “Some Gabidulin Codes cannot be List Decoded Efficiently at any Radius” available at arXiv:1501.04272
3. Eli Ben-Sasson, Tuvi Etzion, Ariel Gabizon, Netanel Raviv “Subspace Polynomials and Cyclic Subspace Codes” arXiv:1404.7739
4. Large sets of subspace designs Michael Braun, Michael Kiermaier, Axel Kohnert and Reinhard Laue arXiv:1411.7181
5. Javier de la Cruz, Michael Kiermaier, Alfred Wassermann and Wolfgang Willems Algebraic structures of MRD Codes arXiv:1502.02711
6. M. Kovacevic, “Difference Sets and Codes in A_n Lattices,” submitted for publication, available at arXiv:1409.5276.