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**MINUTES FROM THE 4th MANAGEMENT COMMITTEE
MEETING OF
COST Action IC 1104**

**Random Network Coding and Designs
over $GF(q)$**



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Bordeaux

20 June 2014

14:10 – 17:10

1. Welcome

Dr Marcus Greferath, Chair of Action IC1104, welcomed the participants to Bordeaux and opened the meeting. He informed the Management Committee again about the recent death of Axel Kohnert and suggested to dedicate a minute of silence to the valued colleague.

A quorum (2/3 of Parties) was not reached: 23 representatives of 16 countries out of 26 attended the meeting: Belgium, Croatia, Denmark, Estonia, France, Germany, Ireland, Israel, Norway, Portugal, Serbia, Slovakia, Spain, Switzerland, Turkey, United Kingdom. The list of participants is in **Annex 2**.

2. Adoption of the agenda

The Agenda as listed in **Annex 1** was adopted without any amendment.

3. Approval of the minutes of the MC Meeting in Ghent on September 20th , 2013

The Minutes of the previous MC (Ghent) meeting as listed in **Annex 7** were adopted by the present members without any amendment.

4. Update from the Action Chair

a. Status of the COST Action

The Chair noted that at the end of the second Grant Period, the budget would be slightly under-spent, if at all. More precise numbers are however not yet available because the claims for the ACN2014 conference and MC meeting have not yet been recorded. The Chair noted that the current financial situation was a consequence of a slightly more aggressive financial planning.

The Chair then gave a summary of the events in the second Grant Period, referring to the STSMs undertaken throughout the year and thanked the organisers of all events organized.

The budget allocated to the Action for the development of the third Work and Budget Plan covering 12 months (August 1, 2014 – July 31, 2015) is 172.000 EUR which includes the maximum of 15% for the Grant Holder Institution to cover the necessary costs for financial and scientific administration and coordination.

b. STSM Status

Up to this MC meeting, 7 STSMs were applied for during the second Grant period, among which 5 were granted and successfully finished. Gender balance has been reached as these 5 STSMs were given to 3 female and 2 male researchers. Further 2 STSMs have been applied for recently and they are expected to be approved and

finished before the end of the grant period. They will officially be listed in the minutes of the next MC meeting.

Name	From	To	Period	Grant	ID	Approved	Title
Grant Period 2: 2013-2014							
Ms Anamari Nakic	Zagreb	Prof. Leo Storme, Ghent	2013-09-23 to 2013-12-20	2 500.00	14464	2013-06-14	Analysis of properties of designs over finite fields
Dr Cristina Martinez	Barcelona (AUB)	Prof. Camilla Hollanti, Aalto University	2013-09-30 to 2013-10-11	1 700.00	15081	2013-08-22	Coding theory of elliptic curves and abelian varieties
Prof. Camilla Hollanti	Aalto University	Montserrat Alsina, Polytechnic University of Catalunya	2014-01-01 to 2014-02-28	2 500.00	15082	2013-08-23	Quaternion algebras and Fuchsian codes
Dr Iván Blanco-Chacón	Aalto University	Dr. Montserrat Alsina, Polytechnic University of Catalonia	2014-01-20 to 2014-02-10	2100.00	15483	2013-11-07	Arithmetic Fuchsian groups, Shimura curves and applications to communications
Amaro Barreal Fernandez	Aalto University	Maria Angeles Vazquez Castro, Universidad Autonoma de Barcelona	2014-01-26 to 2014-02-22	2300.00	16289	2013-12-20	Physical Layer Network Coding and Distributed Storage

3 STSMs have already been approved for the 3rd budget year and similar to the 2nd grant period, a total of 10 STSMs are planned. Those already approved are:

Name	From	To	Period	Grant	ID	Approved	Title
Grant Period 3: 2014-2015							
Dr. Andrea Svob	University of Rijeka	Leo Storme, Ghent University	2014-09-01 to 2014-11-29	2500.00	19068	2014-05-06	Random Network Coding and Designs over GF(q)
Emilio Suárez Canedo	Universidad Autónoma de Barcelona	Leo Storme, Ghent University	2014-09-01 to 2014-10-31	2500.00	20393	2014-06-13	Designs and Coding Theory

Roland David Barrolleta	Universitat Autònoma de Barcelona	Leo Storme, Ghent University	2014-09-01 to 2014-10-31	2500.00	20394	2014-06-13	Designs and Coding Theory
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c. News about the Vademecum

The Chair informed the MC that there are no actual news regarding the Vademecum. He took the opportunity to remind the participants of some changes that had been introduced at the beginning of the 2nd grant period: among these he mentioned that the dissemination budget for the 3rd grant period will be used towards representatives of the Action travelling to up to 2 conferences or other events to represent the Action achievements. Beyond general COST reimbursement rules, researchers can be partially supported up to €500 towards the registration fees for such an event.

5. Promotion of Early Stage Researchers (ESR), Gender Balance

The Chair informed the Management Committee about the fact that a total of 108 researchers are currently participating in Action IC1104. Regarding the promotion of Early Stage Researchers and Gender Balance, he reported that Early Stage Researchers are actively prioritized for support for participation in the project. He noted the percentage of participants in Action activities in the second grant period as follows:

- 38% of participants in the second grant period were ESRs
- Regarding the 7 STSMs carried out and approved in the second grant period, 6 were granted to ESRs

Regarding gender balance, he noted that:

- 32% of participants in the second grant period were female
- For the gender balance in STSMs see the numbers mentioned above.

The Vice Chair drew attention to a further aspect that requires balance in the participation in Action events: There is a list (see **Annex 9**) of Inclusiveness Countries and every Action is supposed to particularly secure participation from researchers from these countries in its events. Regarding this aspects, he noted that about 19% of all participants in Action IC1104 are residing in these Inclusiveness Countries. Moreover, the planned events for grant period 3 will mostly be organized in Inclusiveness Countries.

6. Update from Grant Holder

The Chair informed the MC about the fact that the grant holder's administrative assistant, Clara Grimes, quit her position in February 2014. As an interim solution, the

grant holder appointed Dr. Cornelia Roessing (UCD) to adopt her duties during the months March till May. More recently Ms Na Li (UCD) has been employed as successor of Ms Clara Grimes. The chairs and the MC of this Action would like to take the opportunity to thank Clara and Cornelia for their careful work during the recent years and months, and welcome Ms Na Li in her new position.

7. Update from the COST Office

No representative of the COST Office was present during this MC meeting. Dr. Ralph Stuebner (Brussels) however asked the Chair to convey the following message:

The budget of COST in H2020 is linked with the request to contribute to the mitigation of the unbalance in the European Research Area and that 50% of the COST budget has to contribute to this goal. These means that every Action has to put focus on those inclusiveness countries, which are targeted by COST.

- The European Commission, DG Connect and particularly the Directorate E on Net Futures is interested in a closer collaboration between their and our constituency. They are running a yearly conference, the EUCNC (<http://eucnc.eu/>, in former times FuNEMS). It would be appreciated if Action IC1104 initiated a closer interaction, especially with regard to the concertation of meetings (should restart in fall 2014) and to the EUCNC 2015.

- Regarding H2020, the COST association has been founded and responded to the call of the European Commission on the implementation of the COST framework. The negotiations of the contract between the COST Association and the European Commission are expected to be finalized at the end of June, so that the COST Association will become fully operational in July. With the transition to H2020 the Committee of Senior Officials (CSO) of COST is revising first the evaluation of proposals for new COST Actions. This is why the call in September 2014 had been moved and will be joined with the calls in 2015. In practice this means that more Actions than usual will be approved in 2015. Secondly, as also the term of the Domain Committees is ending, it is rethinking also the monitoring of Actions. For both more details are not known at the moment.

8. Update from DC Rapporteur

The DC Rapporteur was not present to provide an update.

9. Annual Progress Conference in Košice, April 22-25, 2014

The Chair Marcus Greferath attended the conference and reported on the results and administrative aspects on the project in a 20-minute talk held on the second morning of the conference about the second year's outcomes of the project. This talk and its results were well received by the audience and the DC.

The Chair asked the MC for more input and assistance in the preparation of such talks, because otherwise there is a slight risk in an overemphasis of the aspects of the project that are covered by the Chair's focus and field of interest.

10. Follow-up of MoU objectives: Progress reports

The Working Group leaders who were present reported on the recent scientific activities of the Working Groups. They provided brief updates for the benefit of the members of other Working Groups.

(a) Working group I and IV - report by T. Etzion and J. Rosenthal

The Action is very successful as far as working groups 1 and 4 are concerned. We saw in the conference many good results that were presented by our COST members and are a result of the work which was done during the year. Many new collaborations result from the COST Action and important discussions on future joint work were done during the conference. Many more students are working on Network Coding as a result of the COST Action. This is of course something that is not unique to working groups 1 and 4, but these two working groups certainly benefit from it.

(b) Working group II - report by A. Vazquez Castro

Angeles Vazquez Castro reported on intensive collaborations within Working Group 2. She particularly mentioned joint projects between the University of Strathclyde and the University of Novi Sad, which led to publications in the IEEE Transactions on Multimedia. Beyond that, she referred to a joint project between the University of Porto and the University of Lancaster, which has the title "Network error control for Rapid and Reliable Data Delivery" and is being funded by the Engineering and Physical Sciences Research Council (EPSRC), UK. Principal Investigator: Dr. Ioannis Chatzigeorgiou (Lancaster University). She concluded with information on a collaboration between the University of Alicante and Universitat Autònoma de Barcelona with the topic "GF(q)-linear codes for Digital Video Broadcasting via Satellite-Second Generation (DVB-S2) systems for forward erasure correction (FEC)".

(c) Working group III - report by S. Blackburn

Simon Blackburn highlighted the work of Philippe Gaborit, who had made progress on the cryptanalysis of schemes based on rank metric codes and has also produced a cryptosystem and signature scheme using NTRU-like techniques. The Working Group

also made vast progress in disseminating good cryptographic practice into the network coding community; it raised awareness of new cryptographic techniques (an example being the well-received talk on lattice-based cryptography by Vinod Vainkuntanathan). Distributed storage, as pursued by Working Group 5 continues to be an area where network coding techniques look applicable and where cryptography will likely have an important part to play.

(d) Working group V - report by C. Hollanti

During the past year, the working group has carried out research around the following themes resulting in nearly 20 peer-reviewed publications and numerous invited and contributed talks: Steiner systems, device-to-device communications, proximity based services, fractional repetition codes for storage, extendibility of and bounds on random network codes, regenerating distributed storage codes, locally repairable codes, capacity and security of distributed storage systems, physical layer storage transmission protocols, mathematical models for realistic storage racks, erasure codes with simplex locality, and network coding approach to object reconciliation. In particular, the first ever q -Steiner system for $t \geq 2$ has been discovered with parameters $[13, 3, 2; 2]$. Also the first general constructions for exact regenerating codes between the extremal points of the overhead-repair bandwidth tradeoff curve were discovered.

11. Scientific Planning

(a) Update by Raquel Pinto regarding the 4th International Castle Meeting

Raquel Pinto explained the structure of the upcoming International Castle Meeting in Palmela (Portugal) that will be held in the week of September 15th. This meeting will have a Network Coding section that will be organized for Wednesday 17th and Thursday 18th. After intensive discussions in the MC regarding time and budget, it was decided that the co-located COST Working Group meeting will take place from Wednesday 17th till Friday 19th, ending with a regular MC meeting for Action IC1104. Due to comparably inexpensive accommodation, it was considered to lower the accommodation flat rate for this meeting (€90 was suggested), so that more participants can be funded.

(b) Update by Alfred Wassermann regarding ALCOMA2015

Alfred Wassermann explained that the conference ALCOMA 2015 will be held in Kloster Banz near Bayreuth from 15th till 20th March 2015. He informed the MC about details regarding accommodation opportunities and the tentative list of invited speakers.

(c) Update by Miloš Stojaković regarding upcoming Working Group meetings in Novi Sad (Serbia)

Miloš Stojaković, representing the group of action members from the University of Novi Sad, presented a plan for the organization of a two-day workgroup meeting for Working Groups 2 and 5. The event would take place in early May or around the 1st of June of 2015 in Novi Sad, Serbia.

(d) Work and Budget Plan for 3rd Grant Period

The Action's Vice Chair Mario Pavcevic introduced a possible budget for the upcoming 3rd grant period and explained that his draft would require possible changes that reflect the plans for the Castle Meeting in Palmela mentioned above. The Chair noted that the W&B plan would need to be presented to our partners in Brussels in due time, and when done so, it would be passed on to the MC for a general vote.

(e) Long-term planning

The Chair noted that the annual budget allows for 3 meetings per year, so that in light of limited funding for the 3rd grant period no further events should be planned.

For the 4th year of the Action, the Vice Chair informed the MC about his plan to organize the Action's final conference in Dubrovnik, Croatia. Chair and Vice Chair emphasized the important role of this conference in the final evaluation of the Action. They explained that his event should enjoy larger funding to make sure that all or as many as possible action members are able to participate. Moreover, a dedicated volume in a reputed journal is envisaged as the Actions concluding publication.

The MC representative from Turkey, Gunes Zeynep Kurt reported about her intention to organize a combined Working Group and MC meeting during the final grant period.

(f) Dissemination planning

The Chair reminded the MC that in the coming work and budget plan for the 3rd year of the Action there will be two allocations to represent the Action at conferences. In this respect Angeles Vazquez-Castro explained her plan to represent the Action in a Dissemination Meeting at the IETF- IRTF Research Group on Network Coding. Charter information about this meeting can be found at:

<http://trac.tools.ietf.org/group/irtf/trac/wiki/nwcrq>

12. Requests for new members: Sweden

The Chair explained the current issues with a procrastination of the interested member country Sweden. He indicated that he was in contact with Brussels in order to sort this problem out. In the mean time, Sweden has joined the Action, and determined Thomas Westerbäck of the KTH Royal Institute of Technology in Stockholm as a new MC member representing Sweden.

13. Non-COST applications to the Action

The Chair reminded the MC that Wei Xiang, U Southern Queensland (AU) has become a member of the Action in its second year. Thereby Australia is an international partner country of Action IC1104.

Apart from this there are no further non-COST applications to the Action.

14. AOB

The Chair reminded the members of the MC to nominate substitutes, so that it will be easier in the future for MC meetings to reach a quorum for decisions.

15. Location and date of next meeting

The MC will have its next meeting on September 19th 2014 in Palmela, following the international Castle meeting and Working Group meetings at the same location.

16. Summary of MC decisions

No decisions were allowed to be taken during the MC meeting itself. Several decisions were taken electronically after the session. More information as follows:

- Sweden joining the action (unanimously approved, see Annex 3)
- Work & Budget plan for 3rd Grant Period (unanimously approved, see Annex 4 and 8)
- Support for selected researchers on Palmela WG meeting, admission of late registrations, reduction of Hotel flat rate to 100EUR (unanimously approved, see Annexes 5 and 6)

17. Closing

The MC Chair thanked all MC members present and closed the meeting at 17:10.

List of Annexes

Annex 1: Agenda of current meeting

Annex 2: Signed list of the participating Management Committee members

Annex 3: MC decision approving Sweden joining the Action (email from 29.06.14)

Annex 4: MC decision approving W&B plan for 3rd Grant period (email from 22.07.14)

Annex 5: MC decision approving details about Palmela WG and MC meeting (email from 24.07.14)

Annex 6: Amendment of MC decision regarding Palmela (email from 06.08.14)

Annex 7: Minutes of the Ghent MC meeting

Annex 8: Work and Budget Plan for Grant Period 3 (2014/2015)

Annex 9: List of inclusiveness countries