

**PROGRAM AND
INVITATION**

**8th International ITG
Conference on Source
and Channel Coding
(SCC'10)**

**Dedicated to the Memory of
Ralf Kötter**

**January 18-21, 2010
University of Siegen/Germany
<http://www.scc2010.net>**

A message from the General Chair

The **International ITG Conference on Source and Channel Coding** has been organized for the eighth time. It continues to offer a platform for expert discussion on recent developments in source and channel coding. We would like to invite you to share your expertise in our discussions on future telecommunication systems.

Three tutorials free of charge are offered the afternoon before the conference starts.

The conference covers new aspects and results of Classical and Network Information Theory, Multi-user Information Theory, Source Coding and Compression, Speech, Audio, Image and Video Coding, Channel Coding and Coded Modulation, Joint Source and Channel Coding, Error Concealment, Multiple Access (e.g. CDMA, OFDMA), MIMO Systems and Space-Time Coding, Synchronization, Aspects of Cognitive Radio.

One of the social events will be a visit of the Krombacher Brauerei, one of the largest breweries in Germany.

This VDE/ITG conference is organized by the University of Siegen and by the ITG (Information Technology Society) expert group 5.1 (Information and Systems Theory) in technical co-sponsorship with IEEE Information Theory and Communication Society. The conference will take place at the University of Siegen.

On behalf of the organizers we welcome you to Siegen and wish you enjoyable, interesting experiences and a successful participation in the conference.

Christoph Ruland

Organizers

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Prof. Dr.-Ing. R. Mathar, RWTH Aachen

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Prof. Dr. Christoph Ruland, University of Siegen

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For further information please visit the conference website

<http://www.scc2010.net>

Local organization

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PROGRAM

Monday, January 18, 2010

12:00 – 21:00 Registration
14:00 – 17:30 Tutorials
15:30 – 16:00 Coffee Break
18:00 – 21:00 Reception

Tuesday, January 19, 2010

08:00 – 16:15 Registration
09:00 – 09:15 Opening
09:15 – 09:30 In Memoriam Ralf Kötter
09:30 – 10:20 Robert Calderbank, Invited Speaker
10:20 – 12:00 Coding I
12:00 – 13:00 Lunch
13:00 – 13:20 Oral Poster Presentation
13:20 – 14:20 Poster Presentation including Coffee Break
14:20 – 16:00 Source and Channel Coding
16:00 – 21:00 Excursion: Krombacher Brewery

Wednesday, January 20, 2010

09:00 – 09:50 Jim Massey, Invited Speaker
10:00 – 11:40 Novel approaches in Communications
11:40 – 12:40 Lunch
12:40 – 14:20 Network Information Theory and Coding
14:20 – 14:50 Coffee Break
14:50 – 16:30 Coding II
19:00 – 23:00 Dinner Siegerlandhalle

Thursday, January 21, 2010

09:00 – 09:50 Gerhard Kramer, Invited Speaker
10:00 – 11:00 MIMO
11:00 – 11:30 Coffee Break
11.30 – 12.30 OFDM

PROGRAM

Monday January 18, 2010

12:00 - 21:00 **Registration**
14:00 - 17:30 **Tutorials**

**Information Combining:
Models, Bounds and Applications**
Johannes Huber
University of Erlangen-Nürnberg

**Point to Multipoint MIMO-OFDMA:
Principles, Limits, and Standardization for
LTE**
Gerhard Bauch
Universität der Bundeswehr, München

Iterative Receiver Algorithms
Heinrich Meyr
RWTH Aachen

15:30 – 16:00 Coffee Break
18:00 – 21:00 Reception

Tuesday January 19, 2010

08:00 - 16:15 **Registration**
09:00 - 09:15 **Opening**
General Chair, Program Chair

09:15 - 09:30 **In Memoriam Ralf Kötter**
Joachim Hagenauer
TU München (Prof. emer.)

09:30 - 10:20 **Something Old – Something New**
Robert Calderbank, Invited Speaker
Princeton University, USA

10:20 - 12:00 **Coding I**

Error Resilient Turbo Compression of Source Codec Parameters using Inner Irregular Codes

Laurent Schmalen, Peter Vary

On a Property of the Soft Bit Density associated with Log-Likelihood Ratios of a Binary AWGN Channel

Wolfgang Rave

Relation between Global and Local EXIT Charts in Hybrid Turbo Codes

Humberto Beltrao Neto, Werner Henkel

On the Equivalence of Sudan-Decoding and Decoding via Virtual Extension to an Interleaved Reed-Solomon Code

Alexander Zeh, Sabine Kampf, Martin Bossert

Performance Study of Non-Binary Belief Propagation for Decoding Reed-Solomon Codes

Marcel Bimberg, Michael Lentmaier, Gerhard Fettweis

12:00 - 13:00 **Lunch**

Poster Presentation
A Cooperative Scheme for Shaping Degree Distribution of LT-Coded Symbols in Network Coding Multicast

Apirath Limmanee, Werner Henkel

On the Throughput/Bit-Cost Tradeoff in CSMA Based Cooperative Networks

Georg Boecherer, Rudolf Mathar

A Slotted ALOHA Scheme Based on Bipartite Graph Optimization

Gianluigi Liva

13:00 – 13:20 **Poster Presentation (cont.)**

Dual-Hop UWB Transmissions using One Multiple-Antenna Relay with Antenna Selection versus Single-Antenna Relay Selection

Kiattisak Maichalernnukul, Feng Zheng, Thomas Kaiser

On random Boolean Threshold Networks

Reinhard Heckel, Steffen Schober, Martin Bossert

A Method For Soft Decision Decoding Of Reed-Solomon Codes Based On The Extended Euclidean Algorithm

Sabine Kampf, Antonia Wachter, Martin Bossert

Semi-Analytical Solutions for Rate Distortion Bounds and OPTA for Sources with Arbitrary Distributions

Matthias Rüngeler, Birgit Schotsch, Peter Vary

A Stopping Radius for the Sphere Decoder: Complexity Reduction in Multiple-Symbol Differential Detection

Andreas Schenk, Robert F.H. Fischer

Mutual Information Based Resource Allocation in Relay Networks

Aimal Khan, Volker Kuehn

13:20 – 14:20 **Poster Presentation including Coffee Break**

14:20 – 16:00 **Source and Channel Coding**

Superposition Mapping with Application in Bit-Interleaved Coded Modulation

Tianbin Wo, Peter A. Hoeher

The FlexCode Source-Channel Coding Approach for Audio and Speech Transmission

Laurent Schmalen, Thomas Schlien, Peter Vary

Iterative Source-Channel Decoding with Cross-Layer Support for Wireless VoIP

Tobias Breddermann, Helge E Lueders, Peter Vary, Ismet Aktas, Florian Schmidt

Adaptive HARQ for Imperfect Channel Knowledge

Stephan F. Pfletschinger, Monica Navarro

Image Retrieval using Compressionbased Techniques

Daniele Cerra, Mihai Datcu

16:00 – 21:00 **Excursion: Krombacher Brewery**

Wednesday January 20, 2010

09:00

Combined Source-Channel Coding – A Good Idea?

*Jim Massey, Invited Speaker
ETH Zürich*

10:00 – 11:40

Novel approaches in Communications Synthesizing All Linearized Shift-Registers of the Minimal or Required Length

Vladimir Sidorenko, Martin Bossert

On the Capacity of Constrained Systems

Georg Böcherer, Valdemar da Rocha, Cecilio Pimentel, Rudolf Mathar

On the Impact of Thresholding and Quantization on the Behavior of Bandlimited Systems and Signals

Holger Boche, Ullrich J. Mönich

A Multiport Theory of Communications

Michel Ivrlac, Josef A. Nossek

Reconstruction of Boolean Genetic Regulatory Networks consisting of Canalizing or Low Sensitivity Functions

Steffen Schober, Katharina Mir, Martin Bossert

11:40 – 12:40

Lunch

12:40 – 14:20

Network Information Theory and Coding

Binary Codes for Packet Error and Packet Loss Correction in Store and Forward

Maximilien Gadouleau, Alban Goupil

On the Transmit Strategy for the Interference MIMO Relay Channel in the Low Power Regime

Anas Chaaban, Aydin Sezgin

Correcting generalized Matrix Erasures with Applications to Random Network Coding

Ernst M. Gabidulin, Martin Bossert, Nina Ivanovna Pilipchuk

12:40 – 14:20	Network Information Theory and Coding (cont.) Capacity-achieving Coding for Cellular Downlink with Bidirectional Communication <i>Tobias J. Oechtering, Hieu T. Do, Mikael Skoglund</i> Secrecy Capacity of Single- and Multi-Antenna Channels with Simple Helpers <i>Eduard Jorswieck</i>
14:20 – 14:50	Coffee Break
14:50 – 16:30	Coding II An Interleaving Scheme for Efficient Binary LDPC Coded Higher-Order Modulation <i>Stefan Nowak, Ruediger Kays</i> Fast BER Estimation of LDPC Codes <i>Takakazu Sakai, Koji Shibata</i> Improved Iterative Decoding of LDPC Codes from the IEEE WiMAX Standard <i>Thorsten Hehn, Johannes Huber, Stefan Laendner</i> Density Evolution Analysis of Protograph-Based Braided Block Codes on the Erasure Channel <i>Michael Lentmaier, Benedikt Nöthen, Gerhard P. Fettweis</i> Asymptotic Performance Limit of Optimal Linear Coding <i>Venceslav Kafedziski</i>
19:00 – 23:00	Dinner Siegerlandhalle

Thursday January 21, 2010

09:00	Gerhard Kramer, Invited Speaker University of Southern California
10:00 – 11:00	MIMO High Performance Fixed Effort MIMO Detector <i>Mohamed Chouayakh, Andreas Knopp, Berthold Lankl</i> Ergodic Capacity of Frequency Selective Slowly Fading MIMO Channels <i>Venceslav Kafedziski</i> Space-Time Bit Trellis Codes <i>Frank Kienle, Christina Gimmmler</i>
11:00 – 11:30	Coffee Break
11:30 – 12:30	OFDM Evaluation of Encoded MU-MISO-OFDM Systems in TDD Mode with Non-ideal Channel Reciprocity <i>Mark Petermann, Dirk Wübben, Karl-Dirk Kammeyer</i> Selected Mapping with Implicit Transmission of Side Information using Discrete Phase Rotations <i>Christian Siegl, Robert F.H. Fischer</i> Capacity of Clipped 4-QAM-OFDM <i>Robert F.H. Fischer</i>
12:30	Close of the Conference

General Information

Registration

Registration fees include admission to the conference, one copy of the conference proceedings on CD-ROM, coffee breaks, lunches, the reception on Monday, Excursion on Tuesday and Dinner on Wednesday (not included in student ticket). Please remember that the number of places is limited.

To register for the SCC '2010 please fill in the registration form attached to this programme and return it to VDE-Conference Services, Fax: +49-(0)69 9631-5213. To enjoy the „early-bird-discount“, the VDE-Conference Services must receive the form before December 18, 2009. Full payment or credit card information must accompany all registrations in order to be accepted.

If you prefer online registration, please use the Registration button of www.scc2010.net

Conference Fee

	Registration before December 18, 2009	Registration from December 19, 2009
Non-Member	€ 390,--	€ 420,--
Member VDE, IEEE *	€ 360,--	€ 390,--
Speaker	€ 310,--	€ 340,--
Student ** (without dinner and proceedings)	€ 50,--	€ 80,--
Additional dinner ticket	€ 65,--	€ 65,--
Additional copy proceedings (CD-ROM)	€ 20,--	€ 20,--

* Participants applying for the membership fee must include a copy of their membership card to the registration form.

** Students must provide a copy of the student card. The student fee does not apply for PhD Students.

Presenting authors, co-authors, committee members and session chairs are not exempt from paying registration fees.

Additional copies may be purchased on-site or by prepayment on the registration form.

Tutorials

On Monday, January 18, 2010, from 14:00 - 17:00 three parallel tutorials will take place. The tutorials are free. Please select the tutorial you want to attend and tick the appropriate box on the registration form or on the online-registration (information for organisational purpose).

Payment

Payment for registration, including bank charges and processing fees, must be made in Euro.

The conference fee has to be fully paid in advance. Confirmation of registration will be sent after full payment has been received by VDE-Conference Services.

The following methods of payment are accepted:

- Credit card authorisation as per registration form. The 16 digit card number, expiry date, security No. (last 3 digits on rear side of credit card) and holder's name must be indicated on the registration form. Signature of the card holder is mandatory.
- Online-registration via VDE conference homepage <http://www.scc2010.net>

Cancellation

In case of cancellation, provided that written notice is received at the VDE-Conference Services before December 18, 2009, the registration fee will be fully refunded less a handling fee of Euro 30,--. After December 19, 2009 no refund will be made. There can be no reductions for late arrival, early departure or any meals not taken. Proceedings (on CD-ROM) will then be sent to the registrant after the conference.

For questions about registration please contact

VDE-Conference Services
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Fax: +49-(0)69 9631-5213
E-mail: vde-conferences@vde.com

Proceedings and Badges

All papers accepted for presentation at the conference will be published with the proceedings on CD-ROM. These will be handed on-site to all delegates attending the event.

Please do not forget that badges are required for admittance to all sessions, lunches, the excursion and to the dinner.

Proceedings and badges will be available at the registration desk.

Official Conference Language

The official language of the conference will be English.

Venue

The conference will take place

18.01.2010

Tutorials, Registration, Reception

Artur-Woll-Haus
Room AE-A 101-103
Am Eichenhang 50
57076 Siegen

19.1.-21.1.2010

Conference, Registration

Campus Paul Bonatz Straße
Building I Room: PB/I 001
Paul-Bonatz-Straße
57076 Siegen

Conference Website

For directions please have a look on the Conference Website
<http://www.scc2010.net>

Accommodation

You will find a number of hotels on the conference homepage:
<http://www.scc2010.net>

Shuttle-Service will be provided between Best Western Hotel (= Parkhotel), Ramada Hotel, Hotel Pfeffermühle and the University in the morning and in the evening.

Reservations should be made as soon as possible.

Reception

Monday, January 18, 2010, 18:00 –21:00h
in Artur-Woll-Haus, Room AE-A 101-103,
Am Eichenhang 50, 57076 Siegen (same place as the tutorials)

Guided Tour



An excursion to Krombacher Brauerei will be organized on Tuesday, January 19, 2010, 16:15 – 21:00 h.

Shuttle-Service will be provided to the Krombacher Brewery and back to the hotels (Best Western Hotel, Ramada Hotel, Hotel Pfeffermühle).

Dinner

The conference dinner will be held Wednesday, January 20, 2010, 19:00 – 23:00 h, at the Siegerlandhalle, Siegen (address: Koblenzer Straße 151, 57072 Siegen).

General Information

Electricity

230 volts, 50Hz. European-style two-pin plugs are standard

Money

All banks provide 24-hour cash machines, which accept most credit cards such as MasterCard, VISA, Maestro or American Express. If you need to cash traveller's cheques or wish to exchange money at a bank, you will need to know the opening hours of German banks.

The following information is based on the average bank opening hours in Germany:

Monday to Friday: 08:30 - 12:30 and 13:30 - 15:30 or 16:00.
Thursday afternoons 13:30 - 17:00 or 18:00. Afternoon closing time depends on the individual bank or branch.

Useful phone numbers

The international access code for Germany is +49. The outgoing code is 00 followed by the relevant country code (e.g. 0044 for the United Kingdom). Note that telephone numbers in Germany can range from four to nine digits. There are surcharges on international calls made from hotels. The local mobile phone operators use GSM networks and have roaming agreements with most international operators.

Country code 49

City code 0271 (271 from abroad)

Police 110

Fire Brigade 112

Emergency Medical Services 112

Insurance

The organisers may not be held responsible for any injury to participants or damage, theft and loss of personal belongings. Participants should therefore make their own insurance arrangements.

VISA regulations

EU nationals do not require a visa. In general all other foreign travelers require a visa for stays in Germany. For more information please have a look at the website of the Federal Foreign Office: <http://www.auswaertiges-amt.de>.

For visa application. please, use the paper acceptance letter or the registration confirmation.

Travel

Arriving by plane

The next airports are:

- Airport Cologne/Bonn (95 km to Siegen)
- Airport Frankfurt (134 km to Siegen)
- Airport Düsseldorf (137 km to Siegen)

Connection to Siegen from all airports by train (Deutsche Bahn).

Arriving by train

You can reach Siegen by train, passing the following stations:

- Frankfurt a.M.
- Cologne
- Hagen
- Kassel



Time tables and tickets: www.bahn.de

Arriving by car

You can reach Siegen by either of two autobahn routes, on the A45 (Dortmund – Giessen/Frankfurt) or the A 4 (Cologne – Olpe).

To access all university sites from the Giessen/Frankfurt direction, leave the A45 at junction 21 (Siegen/Netphen) and take the B54N/B62N urban expressway ('Hüttentalstrasse': HTS). Follow the signs for 'Universität'.

Coming from Cologne, stay on the A4 at the intersection 'Olpe-Süd' (from the Dortmund direction, leave the A45 at 'Olpe-Süd' and join the A4) in the direction of Kreuztal/Siegen-Nord. This merges into the urban expressway B54 ('Hüttentalstrasse').

At the exit 'Siegen-Weidenau/Netphen' follow the signs for 'Universität' on the B62 until you reach the left-turn signposted 'Universität/Haardter Berg' (left at the 2nd traffic lights).

Remark:

A special **"Practical Guide"** and latest News will be published on our homepage **www.scc2010.net**

We would like to thank the sponsors of this conference. Without their contribution the program would not be possible in this extent (sponsors are in alphabetical order)



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