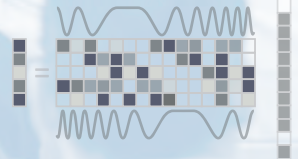


Welcome to the International Workshop on Compressed Sensing applied to Radar, Multimodal Sensing and Imaging.



CoSeRa 2018




CoSeRa 2018 – 10 - 13. Sep. – University of Siegen, Germany



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**We take great pleasure
in inviting you to the meanwhile
fifth edition of the CoSeRa
at the University of Siegen.**

Welcome to CoSeRa 2018

The idea of the CoSeRa workshops is to join world-class scientists, engineers and educators engaged in the fields of Compressive Sensing (CS) with a wide scope of applications to Radar, optical and nonoptical 2D/3D imaging, material analysis surface and subsurface inspection by ultrasonic, microwave, TeraHertz as well as X-ray techniques.

CoSeRa covers the complete sensoric chain from novel type of sensors, hardware concepts over sensor signal processing to high level information extraction/mining concepts adopting the paradigms of CS at every stage. It is the engineering embedding which turns abstract mathematical CS models with the least possible number of prior assumptions into valid engineering models with the maximum possible number of additional, but »non informative priors« in order to extract the highest possible information amount out of noisy data.

Upon this background, we believe that the combination of invited key-speeches and contributed talks will allow the formation of a thrilling technical program and setup the stage for extremely productive interaction and exchange between mathematicians, engineers and application domain people.

As any interaction and cooperation of experts can only grow within the scope of a holistic workshop concept respecting all levels and layers of communication, we are additionally taking highest efforts to not only setup up a scientifically and technically outstanding programme, but also to make its participants feel be taken extremely good care of, with a thrilling social and also accompanying persons programme.

Siegen and its surroundings offer an abundance of opportunities, beautiful landscape (Siegen is the greenest city of Northrhine Westfalia), forests lakes, wildlife Wisent resorts and last but not least, a world known brewery (»Krombacher«) where a visiting excursion will be part of the social programme.

With intensive and careful planning underway we anticipate a technically outstanding and most pleasant workshop. We look forward to seeing you in Siegen in September 2018.



Otmar Loffeld

Co-chair of CoSeRa 2018



Gitta Kutyniok

Co-chair of CoSeRa 2018



Joachim Ender

Co-chair of CoSeRa 2018

Topics of interest

Topics of interest include (but are not limited to)

Fundamentals, Mathematical Aspects, Concepts and Algorithms of Compressed Sensing, with applications to:

- Radar systems (target detection, GMTI,...)
- Imaging radar (SAR, ISAR)
- THz imaging and material analysis
- Digital optics, time of flight imaging, hyperspectral imaging
- Systems for medical diagnostics (CT, MRT, X-ray, ultrasono-graphy)
- X-ray crystallography
- Acoustic systems, microphone arrays, SONAR systems
- Radio astronomy

Classification based on compressed sensing

- Sparse modeling
- Physical modeling, e.g. based on electromagnetic theory
- Dictionary learning

System design and hardware for compressed sensing

- Analog to information converters
- Sampling strategies, sparse array design

Random and optimum sensing matrices Structured compressed sensing for sensor systems

- Block-sparsity, group-sparsity, joint sparsity

Application of matrix decomposition and tensor-based techniques for sensor systems

- Blind deconvolution, blind calibration
- Separation of foreground and background, change detection

Quality evaluation

- Estimation based on compressed sensing and the CRB
- Evaluation of super-resolution
- Off-grid evaluation
- Detection probabilities

Keynote & Tutorial Speakers

Ayush Bhandari,

MIT Boston, US, – Sampling Time-Resolved Phenomena

Yonina Eldar,

Technion Haifa, Israel – Sub-Nyquist and Cognitive Radars

Felix Krahmer,

TUM, Munich, Germany, – Signal recovery from structured random measurements

Michael Möller,

University of Siegen, Germany – Minimization Algorithms for L_1 Regularized Problems

Xiao Xiang Zhu,

DLR, Munich, Germany, – Sparse reconstruction and compressive sensing in Earth observation

Collocated invited panel jointly with DFG Research Training Group GRK 1564 - Imaging New Modalities

Wolfgang Heidrich,

King Abdullah University of Science and Technology (KAUST), Saudi Arabia – Computational Imaging and Display - Hardware-Software Co-design for Imaging Devices

Hans Peter Seidel,

MPI Saarbrücken, Germany – Visual Computing - The World inside the Computer

Registration & Details

Conference Web Site (Registration & Details)

<http://www.zess.uni-siegen.de/CoSeRa2018>

Important Deadlines

Full five-page paper submission	30. April 2018
Notification of acceptance and early registration	13. June 2018
Final camera ready papers and author registration	31. July 2018
CoSeRa 2018	10.-13. Sep. 2018

All accepted and presented papers will be referenced by Eurasip

Travel to Siegen

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: Deutsche Bahn.

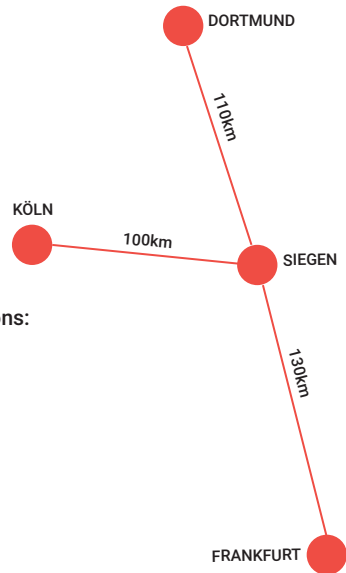
Arriving by car

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).



Venue

May we introduce to you

– The University City of Siegen!

With a population of more than 105,000 citizens, Siegen is the economical and cultural center of the district of Siegen-Wittgenstein. Located in the south Westphalian part of the North Rhine-Westphalia, Hessen and Rhineland-Palatinate, the city is service and administrative center, university town and one of Germany's greenest cities with an urban catchment of about 600,000 people.

The city's history is markedly shaped by mining, which locally began as far back as La Tène times. Bearing witness to this long time industry are the many mines that can be found within city limits. In 1224, Siegen was firstly mentioned as a newly built town. The long tradition of mining in Siegen ended in the 1960s, when the last pits were closed. Siegen offers a metropolitan cultural programme: Historic sites, top-class theater and cultural events in the new Apollo-Theater and the rebuilt Siegerlandhalle and cabaret performances in the LYZ. Besides, there are alternating art exhibitions in the urban galleries.

Siegen is stronghold of education and culture in south Westphalia. You may find many museums, churches, galleries and other cultural highlights here. Siegen is a city undergoing transformation. The face of the university city has changed significantly and been rejuvenated. Because on the one hand, during the 2013 "Südwestfalen Regionale" structural development program and the "Siegen – zu neuen Ufern" (Siegen – New Riverside) project, the Sieg river underwent clearing and ecological restoration. New recreational areas have been constructed on its banks. On the other hand, with the new "Unteres Schloss" Campus, the university has arrived in the heart of the city. Siegen is the urban center of the region of South Westphalia.



**May we
introduce to you -
The University City
of Siegen!**



Must See

Since September 2016 the amazing ‚Siegen zu neuen Ufern‘ has been inaugurated, this is a new and stunning stair area overlooking the Sieg river and a trendy hang-out for the locals as well as visitors.

Must Do

We recommend strongly that in case you have some free time that you visit the old town (Siegen Alt Stadt) to really experience the local atmosphere and enjoy some traditional German food and beer.

Don't Go Home Without

The Hübbelbummler („Hübbel“) is a two-storey nostalgia bus that connects the suburbs to the upper town. It starts at the ZOB from Siegen and goes to Kochsecke, Obergraben, Löhrrstraße, Marburger Straße, Hinterstrasse, Schußwende, Kohlbettstraße, Kölner Tor. Via Hindenburgstraße, the bus returns to the Siegen ZOB.

University life

The University of Siegen is a young university. It was founded in 1972 as one of five new comprehensive universities in North Rhine-Westphalia and in 2003, the Siegen Comprehensive University was named the University of Siegen. But: however brief the history of the university appears to be at first glance, Siegen's tradition as the site of notable educational institutions extends back into the 16th century. In 1536, William the Rich, the Count of Nassau, delegated to the Saxon educator and theologian Erasmus Sarcerius the reconstitution of the Siegen Latin school, similar to a Gymnasium (university preparatory school) today. In the years 1595 to 1599 and 1606 to 1609, the "Universa Schola Nassovica Sigenensis," the "High School" of the state of Nassau, was established within the walls of the city. Today, the University of Siegen is a modern, medium-sized university in the center of the tri-state area of North Rhine-Westphalia, Hessen and Rhineland-Palatinate. It conducts high-quality basic research and knowledge-oriented applied research. External (third party) funding has been continuously increasing. A high level of teaching quality goes hand-in-hand with this, and it is characterized by close ties between theory and practice, and a good staff-student ratio.

The Center for Sensorsystems (ZESS) at the University of Siegen forms an interdisciplinary research institution of the Faculty of Natural Sciences and Engineering featuring the participation of researchers from the departments of Electrical Engineering/Computer Science, Mechanical Engineering, Physics, Chemistry and Mathematics.

Founded in 1987 as a central scientific research institution of the University of Siegen ZESS today looks back onto 30 years of scientific existence and successful work with embeddings in different university structures, the most recent being the integration into the recently founded large faculty melting all technical and natural science departments into one big faculty. ZESS cover the complete sensor information chain from the development of novel types of (2D/3D) sensors, continuing with novel and powerful sensor signal processing (potentially already integrated in hardware with the sensor element up to high level information extraction depending on the application under consideration.

ZESS' motto: „making sensors work ...“ which can be seen as a transcription of Archimedes of Syracuse „measure everything you can and make measurable what cannot be measured yet..“ has lost neither importance nor freshness in today's world being coined by the popular „Trillion Sensors Vision“.

The 6 main application domains of ZESS scientific work: Material & Structural Analysis (in form of e.g. x-ray imaging of nanostructures or structural health monitoring buildings and infrastructures), Mobility and Autonomy (e.g. autonomous driving, ambient assistant living), Smart Production (Industry 4.0, IOT), Environmental Sensing (e.g. Synthetic Aperture Radar, 2D/3D (TOF) imaging), Personal Health and Lifestyle (sensor systems for medical assistance and surgical operations), Safety and Security (e.g. THz material scanners, subsurface inspection systems) with their individually intrinsic broadness of applications reveal the enormous impact of sensors and sensor systems on nearly every aspect of life. In fact sensors and sensor systems may be celebrated as the true winners of a silent revolution.

ZESS takes pride and pleasure in welcoming and hosting CoSeRa 2018 and its participants. We will do everything possible to make the workshop successful and its participants feel at home.

Organizing Committee

CO-Chairs

Otmar Loffeld, Uni. Siegen, Germany – **Gitta Kutyniok**, TU Berlin, Germany
– **Joachim Ender**, Fraunhofer FHR, Germany

Technical Programme Chair

Matthias Weiß, Fraunhofer FHR, Germany – **Wolfgang Weihs**, Uni. Siegen, Germany

Scientific committee (tentative)

Laura Anitori, TNO, The Netherlands – **Salman Asif**, Rice University, USA
– **Alessio Bacci**, CNIT, Italy – **Chris Baker**, Aveillant, United Kingdom –
Richard Bamler, German Aerospace Center (DLR), Germany – **Badri Narayan
Bhaskar**, Yahoo Inc., USA – **Filippo Biondi**, University of L'Aquila, Italy –
David Blacknell, DSTL, United Kingdom – **Thomas Blumensath**, University
of Southampton, United Kingdom – **Shannon Blunt**, University of Kansas,
USA – **Petros Boufounos**, Mitsubishi Electric Research Laboratories, USA –
Abdesselam Bouzerdoum, University of Wollongong, Australia – **Paolo Braca**,
CMRE, Italy – **Alessandra Budillon**, University of Naples Parthenope, Italy –
Rick Chartrand, Descartes Labs, USA – **Phani Chavali**, Monsanto Research,
USA – **Michael Davis**, Georgia Institute of Technology, USA – **Antonio De Maio**,
University of Naples „Federico II“, Italy – **Jacco de Wit**, TNO, The Netherlands –
Giovanni Del Galdo, Fraunhofer IIS, Germany – **Fabio Dell'Acqua**, University
of Pavia, Italy – **Mohammed Nabil El Korso**, Paris 10 University, France –
Joachim Ender, Fraunhofer FHR, Germany – **Emre Ertin**, The Ohio State
University, USA – **Mario Figueiredo**, Instituto Superior Técnico, Portugal –
Gianfranco Fornaro, CNR-IREA, Italy – **Stefano Fortunati**, University of Pisa, Italy
– **Peter Gerstoft**, University of California, San Diego, USA – **Guillaume Ginolhac**,
Universite de Savoie, France – **Elisa Giusti**, University of Pisa, Italy – **María
Antonia González Huici**, Fraunhofer FHR, Germany – **Maria Greco**, University
of Pisa, Italy – **Yujie Gu**, University of Oklahoma, USA – **Ali Gurbuz**, TOBB
University of Economics and Technology, Turkey – **Braham Himed**, AFRL, USA
– **Marc Ihle**, University of Applied Sciences Karlsruhe, Germany – **Tommaso
Isernia**, University of Reggio Calabria, Italy – **Laurent Jacques**, University of
Louvain, Belgium – **Chenglong Jiang**, Shanghai Radio Equipment Research
Institute, P.R. China – **Tian Jin**, National University of Defense Technology, P.R.
China – **Stephane Kemkemian**, THALES AIRBORNE SYSTEMS, France –
Ahmed Shaharyar Khwaja, Ryerson University, Canada – **Ioannis Kyriakides**,
University of Nicosia, Cyprus – **Pascal Larzabal**, ENS-Cachan, PARIS, France –

Geert Leus, Delft University of Technology, The Netherlands – **Dao-jing Li**, Chinese Academy of Sciences, P.R. China – **Dehong Liu**, Mitsubishi Electric Research Laboratories, USA – **Otmar Loffeld**, University of Siegen, Germany – **Yun Lu**, Technische Universität Dresden, Germany – **Marco Martorella**, University of Pisa, Italy – **Christoph Mecklenbräuer**, Vienna University of Technology, Austria – **Jacek Misiurewicz**, Warsaw University of Technology, Poland – **Arye Nehorai**, Washington University in St. Louis, USA – **Xavier Neyt**, Royal Military Academy, Belgium – **Jan Ochodnický**, Armed Forces Academy, Slovakia – **Karl Erik Olsen**, Forsvarets forskningsinstitutt, Norway – **Irena Orović**, University of Montenegro, Montenegro – **Ashkan Panahi**, Chalmers University of Technology, Sweden – **Vishal Patel**, Rutgers University, Piscataway, NJ USA, USA – **Athina Petropulu**, Rutgers, The State University of New Jersey, USA – **Nhat Pham**, TU Hamburg-Harburg, Germany – **Radmila Pribic**, Thales Nederland BV Delft, The Netherlands – **Ludger Prünte**, Fraunhofer FHR, Germany – **Paolo Rocca**, University of Trento, Italy – **Florian Roemer**, Ilmenau University of Technology, Germany – **Gilda Schirinzi**, Università di Napoli Parthenope, Italy – **Philip Schniter**, The Ohio State University, USA – **Woojae Seong**, Seoul National University, Korea – **Konstantinos Slavakis**, University at Buffalo, USA – **Ljubisa Stankovic**, University of Montenegro, Montenegro – **Srdjan Stanković**, University of Montenegro, Montenegro – **Philippe Steeghs**, TNO, Austria – **Jared Tanner**, University of Oxford, United Kingdom – **Sonia Tomei**, University of Pisa, Italy – **Gabriel Vasile**, National Center for Scientific Research, France – **Zhaocheng Yang**, Shenzhen University, P.R. China – **Yimin Zhang**, Temple University, USA – **Zhe Zhang**, Institute of Electronics, Chinese Academy of Sciences, P.R. China – **Xiao Xiang Zhu**, DLR, Germany – **Abdelhak Zoubir**, Darmstadt University of Technology, Germany

Location

The conference will take place at the Alfred Schaber auditory (building I) and at the Center for Sensorsystems of the University of Siegen (building H), which is located at the Paul-Bonatz-Straße 9 - 11.



Notes

We gladly announce the 5th Int. Workshop on Compressed Sensing Theory with an again widened scope of applications to Multimodal Sensing, including Radar, Optical Time of Flight Imaging, Remote Sensing and Structural Health Monitoring (CoSeRa 2018).

CoSeRa will be held in Siegen (Germany) from 10th –13th September 2018. The aim of CoSeRa is to bring experts of Compressive Sensing (CS), signal processing and sensor people together to explore the state-of-the-art in development of CS techniques for different areas of applications and to turn out its advantages or possible drawbacks compared to classical solutions.

