

The first report colloquium on the priority programme
Compressed Sensing in Information Processing

RWTH Aachen University - ICT cubes, July 4-5, 2016

July 4th (14:00 - 16: 00)

Low-Rank Matrix Recovery using Gabidulin Codes over Characteristic Zero	Michael Schelling	14:00 - 14:30
Matrix Recovery under Low-rankness and Sparsity Constraints using Alternating Minimization	Johannes Maly	14:30 - 15:00
Rate-Distortion Analysis of Sparse Sources with Multiple Constraints	Lars Palzer	
Towards a THz stand-off Single-Pixel Camera using Compressed Sensing	Sven Augustin and Benjamin Fürsich	15:00 - 15:30
Security in the Context of Future Communication Challenges and Compressive Sensing	Ingo Roth and Rick Fritschek	15:30 - 16:00

Coffee Break (16:00 - 16: 30)

July 4th (16:30 - 18:00)

Basis Pursuit with Box Constraints for the Reconstruction of Discrete-Valued Sparse Signals	Sandra Keiper	16:30 - 17:00
Iterative Algorithms for the Reconstruction of Discrete-Valued Sparse Signals	Susanne Sparrer	
Compressed Sensing Techniques for Efficient Massive-MIMO Signal Processing	Saeid Haghighatshoar and Axel Flinth	17:00 - 17:30
Adaptive Progressive Edge-Growth Construction of Low Density Sensing Matrices	Miguel Heredia Conde	17:30 - 18:00
Towards the Design of an all-electronic THz-CS Imaging System in Low Cost Silicon Technology	Ritesh Jain	

Social Event (18:30)

July 5th (08:30 - 10: 30)

Compressed-Sensing Recovery by Bayesian Approximate Message Passing with Partially Unknown Signal Prior	Norbert Görtz	08:30 - 09:00
Exploiting Structure in Compressed Sensing Using Side Constraints	Marius Pesavento, Christian Steffens and Jens Steinwandt	09:00 -09:30
1-bit Compressive Sensing with Structured Random Matrices	Alexander Stollenwerk and Niklas Koep	09:30 - 10:00
Adapted Decoding Algorithms for Complex-valued Reed-Solomon Codes	Mostafa Hosni Mohamed	10:00 - 10:30

Coffee Break (10:30 - 11: 00)

July 5th (11:00 - 13: 00)

Estimation of Sparse or Low-rank Covariance Matrices	Volker Pohl	11:00 - 11:30
RIPlless and Block-Based Compressed Sensing in the Analysis Formulation	Maximilian März	11:30 - 12:00
Likelihood based Overlapping Community Detection	Arash Behboodi	
Bilinear Compressed Sensing - First results and open problems	Dominik Stöger and Richard Küng	12:00 - 12:30
The Inverse Problem of Magnetorelaxometry Imaging using ADMM with Total Variation for Increased Reconstruction Resolutions	Janic Föcke	12:30 - 13:00

Lunch Break (13:00 - 14: 00)

July 5th (14:00 - 16: 00)

Compressed Sensing Based Reconstruction of Sound Fields Using Dynamic Measurements	Fabrice Katzberg	14:00 - 14:30
Associated Project DFG CLASS - Overview, Results and Challenges	Johannes Schmitz	14:30 - 15:00
Sparse CS Reconstruction by Nullspace Based L1 Minimization and applications to ISAR Imaging	Alexander Seel and Joachim Ender	15:00 - 15:30
Joint design of compressed sensing and network coding for wireless meshed networks	Carsten Herrmann and Steffen Limmer	15:30 - 16:00

Presentations of CoSIP Projects

Granted Projects

Bilinear Compressed Sensing

- Dominik Stöger (Technische Universität München) and Richard Küng (Universität zu Köln)
Bilinear Compressed Sensing - First results and open problems

Complex-valued Reed-Solomon Codes for Deterministic Compressed Sensing

- Mostafa Hosni Mohamed (Universität Ulm)
Adapted Decoding Algorithms for Complex-valued Reed-Solomon Codes

Compressive 2D/3D SAR (ComSAR)

- Alexander Seel , Joachim Ender (Universität Siegen)
Sparse CS Reconstruction by Nullspace Based L1 Minimization and applications to ISAR Imaging

Compressed Sensing Algorithms for Structured Massive MIMO

- Saeid Haghghatshoar and Axel Flinth (Technische Universität Berlin)
Compressed Sensing Techniques for Efficient Massive-MIMO Signal Processing

Compressed Sensing for Terahertz Body Scanners

- Sven Augustin (Humboldt-Universität zu Berlin) and Benjamin Fürsich (Technische Universität München)
Towards a THz stand-off Single-Pixel Camera using Compressed Sensing

Coordination of the DFG-Priority Programm 1798

- Maximilian März (Technische Universität Berlin)
RIPless and Block-Based Compressed Sensing in the Analysis Formulation
- Arash Behboodi (Rheinisch-Westfälische Technische Hochschule Aachen)
Likelihood based Overlapping Community Detection

CoS-MRXI - Compressed Sensing for Magnetorelaxometry Imaging of Magnetic Nanoparticles

- Janic Föcke (Westfälische Wilhelms-Universität Münster)
The Inverse Problem of Magnetorelaxometry Imaging using ADMM with Total Variation for Increased Reconstruction Resolutions

Dynamic Measurement of Sound Fields using Compressed Sensing

- Fabrice Katzberg (Universität zu Lübeck)
Compressed Sensing Based Reconstruction of Sound Fields Using Dynamic Measurements

Estimation of Covariance Matrices Satisfying Sparsity Priors

- Volker Pohl (Technische Universität München)
Estimation of sparse or low-rank covariance matrices

EXploiting structure in compREssed Sensing using Side constraints (EXPRESS)

- Marius Pesavento (Technische Universität Darmstadt), Christian Steffens (Technische Universität Darmstadt), Jens Steinwandt (Technische Universität Ilmenau)

Exploiting Structure in Compressed Sensing Using Side Constraints

Information Theory and Recovery Algorithms for Quantized and Distributed Compressed Sensing

- Johannes Maly (Technische Universität München)

Matrix Recovery under Low-rankness and Sparsity Constraints using Alternating Minimization

- Lars Palzer (Technische Universität München)

Rate-Distortion Analysis of Sparse Sources with Multiple Constraints

Joint design of compressed sensing and network coding for wireless meshed networks

- Carsten Herrmann (Technische Universität Dresden) and Steffen Limmer (Technische Universität Berlin)

Joint design of compressed sensing and network coding for wireless meshed networks

Quantized Compressive Spectrum Sensing (QuaCoSS)

- Alexander Stollenwerk and Niklas Koep (Rheinisch-Westfälische Technische Hochschule Aachen)

1-bit compressive sensing with structured random matrices

Security in the context of future communication challenges and compressive sensing

- Ingo Roth and Rick Fritschek (Freie Universität Berlin)

Security in the context of future communication challenges and compressive sensing

Terahertz illumination concepts for reciprocal compressive imaging in silicon technologies (LumiCS)

- Miguel Heredia Conde (Universität Siegen)

Adaptive Progressive Edge-Growth Construction of Low Density Sensing Matrices

- Ritesh Jain (Bergische Universität Wuppertal)

Towards the design of an all-electronic THz-CS imaging system in low cost Silicon Technology

Associated Projects**Compressed Localization And Spectrum Sensing for Cognitive Radio and Distributed Radio Surveillance (CLASS)**

- Johannes Schmitz (Rheinisch-Westfälische Technische Hochschule Aachen)

Associated Project DFG CLASS - Overview, results and challenges

Discrete-Valued Sparse Signals - Theory, Algorithms, and Applications

- Sandra Keiper (Technische Universität Berlin)

Basis Pursuit with Box Constraints for the Reconstruction of Discrete-Valued Sparse Signals

- Susanne Sparrer (Universität Ulm)

Iterative Algorithms for the Reconstruction of Discrete-Valued Sparse Signals

Invited Talks

- Michael Schelling (Universität Ulm)
Low-Rank Matrix Recovery using Gabidulin Codes over Characteristic Zero
- Norbert Görtz (Technische Universität Wien)
Compressed-Sensing Recovery by Bayesian Approximate Message Passing with Partially Unknown Signal Prior