AIP 2023

Applied Inverse Problems
Göttingen
Germany

CONFERENCE GUIDE

11th Applied Inverse Problems Conference in Göttingen

SEPTEMBER 4-8, 2023

CRC 1456 MATHEMATICS OF EXPERIMENT

DFG Deutsche Forschungsgemeinschaft

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AIP 2023 Applied Inverse Problems Göttingen Germany

WELCOME TO AIP 2023

DEAR FRIENDS AND COLLEAGUES,

We cordially welcome you on the campus of the University of Göttingen for the **11th Applied Inverse Problems conference**. We are excited to hear your presentations on the newest trends in the field and look forward to discussions on all aspects of Inverse Problems ranging from classical topics such as inverse problems in partial differential equations and regularization theory to themes like uncertainty quantification and machine learning, covering imaging techniques in astrophysics, geophysics, radiology, histology, and solid-state physics, to name just a few, but also applications in fields like econometrics, nuclear power safety, and many others. There will be about 525 oral and 25 poster presentations by 550 registered participants.

The organization of this conference would have been impossible without the dedication and hard work of numerous people. I wish to mention Jennifer Mathias, Eva Hetzel, and Diana Sieber on the administrative side, but also all colleagues and co-workers in the local organizing committee as well as the staff of the Institute of Numerical and Applied Mathematics, which are too many to list here.

This conference guide will help you find your way through the scientific and social program and the locations. We hope you will have an enjoyable stay in Göttingen and have the opportunity to discover some parts of the city, its surroundings, or its past or present scientific activities.

On behalf of the local organizing committee

Thorsten Hohage

GENERAL INFORMATION

ORGANIZING TEAM

SCIENTIFIC COMMITTEE

H. Ammari, ETH Zurich
S. Arridge, UCL London
E. Beretta, NYU Abu Dhabi
F. Cakoni, Rutgers U./USA
J. Cheng, Fudan U. Shanghai
T. Hohage, U. Göttingen
K. Krupchyk, U. California/Irvine
G. Nakamura, Hokkaido U.
L. Oksanen, U. Helsinki
G. Uhlmann, U. Washington
A. Yagola, Lomonosov Moscow State U
T. Zhou, Zhejiang U

LOCAL COMMITTEE

T. Hohage (Chair)

C. Aarset
D. Fournier
M. Halla
B. Harrach, U. Frankfurt
E. Hetzel
S. Huckemann
J. Mathias
T. Nguyen
G. Plonka-Hoch
D. Sieber
M. Uecker, TU Graz
A. Wald
F. Werner, U. Würzburg

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VENUE

Georg-August-Universität
Zentrales Hörsaalgebäude (ZHG)
Platz der Göttinger Sieben
37073 Göttingen

GEORG-AUGUST-UNIVERSITÄT GÖTTINGEN IN PUBLICA COMMODA SEIT 1737

REGISTRATION

SAW Tagungsmanagement
78269 Volkertshausen
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SAW TAGUNGSMANAGEMENT

www.aip2023.de

VENUE INFORMATION

The **conference** will be held on the central campus of the University of Göttingen (**Platz der Göttinger Sieben**), in the center of the city, about a 15 minutes walk from the train station. The talks and sessions will take place in two main buildings:

The **plenary talks** in the morning will take place in the **Zentrales Hörsaalgebäude (ZHG) of the University of Göttingen**.

The **parallel sessions** will take place at the **Verfügungsgebäude (VG)**. The distance between the two buildings is about 100 meters. You can find the locations on the map below.

The **posters** will be presented in the **foyer at the Zentrales Hörsaalgebäude (ZHG)**. All posters will be on display throughout the conference. The poster session will take place on Wednesday from 12:15 – 13:15. The author(s) will be present to discuss their posters with the audience.

LUNCHTIME

The conference fee includes **daily lunch** at the **Central University Canteen (Zentralmensa - opening hours**: Monday - Friday: 11:30 - 14:30). Lunch includes a main dish, free choice of 2 side dishes and a complementary cup of water.

PAYMENT AT THE UNIVERSITY CANTEEN

No cash or check/visa card payments will be accepted in the **Central University Canteen**.
Please use the **vouchers** included in your conference package. The vouchers can be handed in at the **cash canteen desks 3 to 6**.

WIFI CONNECTION ON CAMPUS

If you have an eduroam account, you can access internet with your username and password.
Otherwise, WLAN vouchers will be available at the conference desk.

PUBLIC TRANSPORTATION

GöVB is the public transportation service in Göttingen: **https://www.goevb.de** (only available in German).

If you plan to use public transportation during your stay in Göttingen, we recommend the **Fairtiq** app. This is an easy way to purchase public transport tickets without having to plan your trips in advance. Once you have registered, you can pay cashless and receive your ticket via the app.

Program
MONDAY, 4 SEPT 2023

08:00	Registration	ZHG Foyer
09:00	OPENING	ZHG 011
09:50	Plenary Talk **ON THE SAMPLE COMPLEXITY OF INVERSE PROBLEMS** Giovanni Alberti, University of Genoa, Italy	ZHG 011
10:40	*Coffee Break*	ZHG Foyer
11:10	Plenary Talk **AN UNEXPECTED ROLE OF TRANSMISSION EIGENVALUES IN IMAGING ALGORITHMS** Houssem Haddar, INRIA Paris, France	ZHG 011
12:00	*Lunch Break*	Mensa
13:30	**PARALLEL SESSION 1**	
	MS 03-1 Compressed Sensing meets Statistical Inverse Learning *Chairs:* T. A. Bubba, L. Ratti, M. Santacesaria A. Felisi • W. Zellinger • H. Kekkonen	VG2.103
	MS 12-1 Fast optimization-based methods for inverse problems *Chair:* T. Valkonen S. Leveque • J. M. Everink • X. Liu • B. C. J. Jensen	VG2.102
	MS 14-1 Inverse Modelling with Applications *Chairs:* D. Lesnic, K. Van Bockstal D. Lesnic • K. Van Bockstal • F. Maes	VG1.104
	MS 15-1 Experimental and Algorithmic Progress in Photoemission Orbital Imaging *Chairs:* R. Luke, S. Mathias B. Stadtmüller • F. S. Tautz • U. Höfer • G. S. M. Jansen	VG1.102
	MS 18-1 Inverse problems for fractional and nonlocal equations *Chairs:* Y. Lin, J. Railo, M. Salo B. Kaltenbacher • G. Uhlmann • P. Zimmermann • G. Covi	VG1.103
	MS 25-1 Hyperparameter estimation in imaging inverse problems: recent advances on optimisation-based, learning and statistical approaches *Chairs:* L. Calatroni, M. Pragliola P. Ochs • K. Papafitsoros • A. Sebastiani • F. Bevilacqua	VG0.111
	MS 29-1 Eigenvalues in inverse scattering *Chairs:* M. Halla, P. Monk A. Kleefeld • V. Selgas • F. Monteghetti • J. Sun	VG3.104

MONDAY, 4 SEPT 2023

	MS 34-1 Learned reconstructions for nonlinear inverse problems *Chairs:* S. R. Arridge, A. S. Hauptmann M. Santacesaria • J. Grohl • M. Lassas • J. Nickel	VG3.103
	MS 39 Statistical inverse problems: regularization, learning and guarantees *Chair:* K. Knudsen S. Pereverzyev • A. Abhishake • Y. Ying • K. Mosegaard	VG2.105
	MS 43-1 Inverse Problems in radiation protection and nuclear safety *Chairs:* L. Kuger, S. Siltanen R. Virta • C. Tarpau • P. Dendooven • F. Terzioglu	VG1.108
	MS 44-1 Modelling in Earth and planetary sciences by data inversion at various scales *Chairs:* C. Gerhards, V. Michel, F. J. Simons C. Gerhards • X. Huang • N. Schneider • V. Michel	VG2.104
	MS 52-1 Integral geometry, rigidity and geometric inverse problems *Chairs:* F. S. Monard, P. Stefanov L. Oksanen • P. Stefanov • Y. Wang • S. P. Flynn	VG1.105
	MS 54-1 The x-ray transform and its generalizations: Theory, methods, and applications *Chair:* S. K. Sahoo P. Kow • S. K. Sahoo • G. Ambartsoumian • D. Agrawal	VG1.101
	MS 55-1 Nonlinear Inverse Scattering and Related Topics *Chair:* Y. Yang T. Zhou • Y. Heng • F. Dou • X. Liu	VG3.101
	MS 56-1 Inverse Problems of Transport Equations and Related Topics *Chairs:* R.-Y. Lai, H. Zhou K. Hellmuth • B. Palacios • H. Zhou	VG2.106
	MS 57-1 Inverse Problems in Time-Domain Imaging at the Small Scales *Chairs:* E. Bonnetier, X. Cao, M. Sini A. Posilicano • H. Wang • A. Ghandriche • A. Mantile	VG3.102
15:30	*Coffee Break*	ZHG Foyer
16:00	**PARALLEL SESSION 2**	
	MS 03-2 Compressed Sensing meets Statistical Inverse Learning *Chairs:* T. A. Bubba, L. Ratti, M. Santacesaria A. Abhishake • T. Helin • C. Poon • M. Nguyen	VG2.103
	MS 12-2 Fast optimization-based methods for inverse problems *Chair:* B. C. S. Jensen A. Buccini • L. Afraites • A. Schiela • R. Baraldi	VG2.102
	MS 14-2 Inverse Modelling with Applications *Chairs:* D. Lesnic, K. Van Bockstal O. Baysal • C. Sebu • D. Serikbaev • E. Soccorsi	VG1.104

Program
MONDAY, 4 SEPT 2023

MS 15-2 Experimental and Algorithmic Progress in Photoemission Orbital Imaging *Chairs:* R. Luke, S. Mathias T. L. Dinh • W. Bennecke • H.-J. Elmers • P. Puschnig	VG1.102
MS 18-2 Inverse problems for fractional and nonlocal equations *Chairs:* Y.-H. Lin, J. Railo, M. Salo M. A. Garcia-Ferrero • R.-Y. Lai • G. Nakamura • K. Krupchy	VG1.103
MS 25-2 Hyperparameter estimation in imaging inverse problems: recent advances on optimisation-based, learning and statistical approaches *Chairs:* L. Calatroni, M. Pragliola L. Ratti • M. Zach • M. Pragliola • E. Somersalo	VG0.111
MS 29-2 Eigenvalues in inverse scattering *Chairs:* M. Halla, P. Monk F. Cakoni • S. Meng • E. L. K. Blasten • K. Stratouras	VG3.104
MS 34-2 Learned reconstructions for nonlinear inverse problems *Chairs:* S. R. Arridge, A. S. Hauptmann A. Manninen • O. Mickelin • A. Hauptmann	VG3.103
MS 35 Edge-preserving uncertainty quantification for imaging *Chairs:* A. M. A. Alghamdi, J. S. Jørgensen S. Melidonis • N. Chada • H. Kekkonen • J. S. Jørgensen	VG2.105
MS 43-2 Inverse Problems in radiation protection and nuclear safety *Chairs:* L. Kuger, S. Siltanen M. Bruch • L. Kuger • S. Petrak	VG1.108
MS 44-2 Modelling in Earth and planetary sciences by data inversion at various scales *Chairs:* C. Gerhards, V. Michel, F. J. Simons F. J. Simons • C. Finlay • W. Szwillus • K. Fabian	VG2.104
MS 52-2 Integral geometry, rigidity and geometric inverse problems *Chairs:* F. S. Monard, P. Stefanov M. Cekic • J. Ilmavirta • Y. Zou • J. Bohr	VG1.105
MS 54-2 The x-ray transform and its generalizations: Theory, methods, and applications *Chair:* S. K. Sahoo K. Sadiq • S. Holman • R. K. Mishra • J. Railo	VG1.101
MS 55-2 Nonlinear Inverse Scattering and Related Topics *Chair:* Y. Yang Y. Zhong • Z. Li	VG3.101
MS 56-2 Inverse Problems of Transport Equations and Related Topics *Chairs:* R.-Y. Lai, H. Zhou W. Sun • F. S. Monard • K. Ren • Y. Zhong	VG2.106
MS 57-2 Inverse Problems in Time-Domain Imaging at the Small Scales *Chairs:* E. Bonnetier, X. Cao, M. Sinil P. Liu • A. Mukherjee • S. Senapati • M. Kar	VG3.102

Program
TUESDAY, 5 SEPT 2023

09:00	CALDERÓN PRIZES	ZHG 011
10:00	Plenary Talk **ON THE FRACTIONAL CALDERON PROBLEM** Angkana Rüland, University of Bonn, Germany	ZHG 011
10:50	*Coffee Break*	ZHG Foyer
11:10	Plenary Talk **MICROLOCAL APPLICATIONS TO THE STUDY OF MARKED LENGTH SPECTRUM RIGIDITY AND LENS RIGIDITY IN CHAOTIC SETTINGS** Colin Guillarmou, University Paris-Saclay, France	ZHG 011
12:00	*Lunch Break*	Mensa
13:30	**PARALLEL SESSION 3**	
	MS 02-1 Advances in regularization for some classes of nonlinear inverse problems *Chairs:* B. Hofmann, R. Plato Y. Deng • S. Hubmer • S. Kindermann • C. Klinkhammer	VG1.102
	MS 04-1 Statistical and computational aspects of non-linear inverse problems *Chairs:* R. Nickl, S. Wang A. Lang • C. Strauch • J. Bohr • K. Ray	VG2.102
	MS 14-3 Inverse Modelling with Applications *Chairs:* D. Lesnic, K. Van Bockstal N. Kinash • A. Rahimov • P. D. Ledger	VG1.104
	MS 18-3 Inverse problems for fractional and nonlocal equations *Chairs:* Y.-H. Lin, J. Railo, M. Salo B. Jin • V. Krishnan • P.-Z. Kow	VG1.103
	MS 19-1 Theory and algorithms of super-resolution in imaging and inverse problems *Chairs:* H. Ammari, P. Liu W. Li • P. Liu • V. Duval • B. Laville	VG3.103
	MS 21-1 Prior Information in Inverse Problems *Chairs:* A. Horst, J. Lemvig T. A. Bubba • S. Siltanen • A. Horst • J. Frikel	VG2.103

Program
TUESDAY, 5 SEPT 2023

	MS 22-1 Imaging with Non-Linear Measurements: Tomography and Reconstruction from Phaseless or Folded Data *Chairs:* M. Beckmann, R. Beinert, M. Quellmalz O. Melnyk • M. Beckmann • L. Liehr • R. Beinert	VG1.101
	MS 28-1 Modelling and optimisation in non-Euclidean settings for inverse problems *Chairs:* L. Calatroni, C. Estatico, D. Lorenz M. Benning • Z. Kereta • M. Winkler • C. Estatico	VG1.108
	MS 29-3 Eigenvalues in inverse scattering *Chairs:* M. Halla, P. Monk M. Halla • H. Haddar • H. Liu • R. Novikov	VG3.104
	MS 38-1 Inverse eigenvalue problems in astrophysics *Chairs:* C. Gehan, D. Fournier J. W. Dewberry • D. R. Reese • F. Debras • F. Ahlborn	VG2.105
	MS 40 Dynamic Imaging *Chair:* P. Elbau B. Hahn • S. Fanzon • A. Wald • C. Brandt	VG2.106
	MS 47-1 Scattering and spectral imaging: inverse problems and algorithms *Chairs:* E. T. Quinto, G. Rigaud E. T. Quinto • M. Quellmalz • G. Rigaud • R. Schmähl	VG3.101
	MS 49-1 Applied parameter identification in physics *Chairs:* T. Nguyen, A. Wald O. Scherzer • S. Arridge • B. Kaltenbacher • U. Schwarz	VG3.102
	MS 52-3 Integral geometry, rigidity and geometric inverse problems *Chairs:* F. S. Monard, P. Stefanov T. Lefeuvre • N. Eptaminitakis	VG1.105
	MS 58-1 Shape Optimization and Inverse Problems *Chairs:* L. Afraites, A. Laurain, J. F. T. Rabago R. von Rickenbach • J. S. H. Simon • J. F. T. Rabago	VG2.104
15:30	*Coffee Break*	ZHG Foyer
16:00	**PARALLEL SESSION 4**	
	MS 02-2 Advances in regularization for some classes of nonlinear inverse problems *Chairs:* B. Hofmann, R. Plato Q. Jin • P. Mahale • A. Khan • R. Plato	VG1.102
	MS 04-2 Statistical and computational aspects of non-linear inverse problems *Chairs:* R. Nickl, S. Wang F. Seizilles • M. Giordano • S. Wang • G. Hastermann	VG2.102
	MS 17 Machine Learning Techniques for Bayesian Inverse Problems *Chair:* A. Senchukova J. Hertrich • R. Laumont • A. Senchukova • M. Mollenhauer	VG1.104

Program
TUESDAY, 5 SEPT 2023

MS 19-2 Theory and algorithms of super-resolution in imaging and inverse problems *Chairs:* H. Ammari, P. Liu Z. Fei • K. Wei • C. Poon • R. Petit	VG3.103
MS 21-2 Prior Information in Inverse Problems *Chairs:* A. Horst, J. Lemvig J. Leuschner • V. Kolehmainen • T. Soto • F. Voigtlaender	VG2.103
MS 22-2 Imaging with Non-Linear Measurements: Tomography and Reconstruction from Phaseless or Folded Data *Chairs:* M. Beckmann, R. Beinert, M. Quellmalz A. Fannjiang • B. Diederichs • D. Florescu • M. Rathmair	VG1.101
MS 23-1 Recent developments in reconstruction methods for inverse scattering and electrical impedance tomography *Chairs:* R. Griesmaier, N. Hyvönen L. Fink • L. Schätzle • A. Brojatsch • A. O. Autio	VG1.103
MS 28-2 Modelling and optimisation in non-Euclidean settings for inverse problems *Chairs:* L. Calatroni, C. Estatico, D. Lorenz M. Lazzaretti • E. Resmerita • E. Naldi • K. Bredies	VG1.108
MS 38-2 Inverse eigenvalue problems in astrophysics *Chairs:* C. Gehan, D. Fournier G. M. Mirouh • E. Bellinger • S. G. Kashyap • J. Philidet	VG2.105
MS 42 Inverse Problems with Anisotropy *Chair:* K. Knudsen C. I. Carstea • H. A. Schlüter • B. Jin • R. Gaburro	VG3.104
MS 45-1 Optimal Transport meets Inverse Problems *Chairs:* M. Carioni, J.-F. Pietschmann, M. Schlottbom S. Mukherjee • J.-F. Pietschmann • Y. Yang • D. Lorenz	VG0.111
MS 47-2 Scattering and spectral imaging: inverse problems and algorithms *Chairs:* E. T. Quinto, G. Rigaud G. Ambartsoumian • F. Terzioglu • L. Kuger • L. Neumann	VG3.101
MS 49-2 Applied parameter identification in physics *Chairs:* T. Nguyen, A. Wald V. Nikolic • D. Fournier • T. Kluth • A. Aspri	VG3.102
MS 54-3 The x-ray transform and its generalizations: Theory, methods, and applications *Chair:* S. K. Sahoo S. Senapati • W. Lionheart • R. Alaifari • S. R. Jathar	VG1.105
MS 57-3 Inverse Problems in Time-Domain Imaging at the Small Scales *Chairs:* E. Bonnetier, X. Cao, M. Sini X. Cao • M. Kachanovska • S. Tordeux	VG2.106
MS 58-2 Shape Optimization and Inverse Problems *Chairs:* L. Afraites, A. Laurain, J. F. T. Rabago V. Calisti • L. Afraites • A. Laurain	VG2.104

GENERAL SCHEDULE

SUN, SEPT 3	MON, SEPT 4	TUE, SEPT 5	WED, SEPT 6	THU, SEPT 7	FRI, SEPT 8
	Registration 08:00 – 09:00				
	Opening 09:00 – 09:50	CALDERÓN PRIZES 09:00 – 10:00	**PARALLEL SESSION 5** 09:00 – 11:00	**LAURENT GIZON** 09:00 – 09:50	**ALI FEIZMOHAMMADI** 09:00 – 09:50
	GIOVANNI ALBERTI 09:50 – 10:40	**ANGKANA RÜLAND** 10:00 – 10:50		**JINGNI XIAO** 09:50 – 10:40	**XIANG XU** 09:50 – 10:40
	Coffee Break *10:40 – 11:10*	*Coffee Break* *10:50 – 11:10*	*Coffee Break* *11:00 – 11:20*	*Coffee Break* *10:40 – 11:10*	*Coffee Break* *10:40 – 11:10*
	HOUSSEM HADDAR 11:10 – 12:00	**COLIN GUILLARMOU** 11:10 – 12:00	**GABRIEL PATERNAIN** 11:20 – 12:10	**RICHARD NICKL** 11:10 – 12:00	**YIRAN WANG** 11:10 – 12:00
	Lunch Break *12:00 – 13:30*	*Lunch Break* *12:00 – 13:30*	**POSTER SESSION** 12:15 – 13:15	*Lunch Break* *12:00 – 13:30*	*Lunch Break* *12:00 – 13:30*
	PARALLEL SESSION 1 13:30 – 15:30	**PARALLEL SESSION 3** 13:30 – 15:30	*Lunch Break* *13:15 – 14:00*	**PARALLEL SESSION 6** 13:30 – 15:30	**PARALLEL SESSION 8** 13:30 – 15:30
	Coffee Break *15:30 – 16:00*	*Coffee Break* *15:30 – 16:00*	SOCIAL EVENTS 14:00 –18:00	*Coffee Break* *15:30 – 16:00*	*Coffee Break* *15:30 – 16:00*
	PARALLEL SESSION 2 16:00 – 18:00	**PARALLEL SESSION 4** 16:00 – 18:00		**PARALLEL SESSION 7** 16:00 – 18:00	**PARALLEL SESSION 9** 16:00 – 18:00
Registration & Icebreaker 18:00 – 21:00			18:00 – 22:00 CONFERENCE DINNER		

Program
WEDNESDAY, 6 SEPT 2023

09:00 **PARALLEL SESSION 5**

CT 01 Contributed talks — VG2.104
Chair: P. R. Mickan
M. Klibanov • D.-L. Duong • M. Karimi

CT 02 Contributed talks — VG2.105
Chair: R. Novikov
S. Zheng • J. Rönsch • V. Sivkin

CT 03 Contributed talks — VG2.106
Chair: M. Halla
D. Gangadaraiah • D. McMahon • J. Nurminen

MS 01 Machine Learning for Inverse Problems in Medical Imaging — VG1.102
Chairs: C. Fiedler, J. Flemming
J. Flemming • C. Fiedler • P.-P. Jacobs • M. Wittig

MS 05-1 Numerical meet statistical methods in inverse problems — VG2.102
Chairs: M. Hanke, M. Reiß, F. Werner
S. Pereverzyev • F. M. Frommer • B. Stankewitz • L. Hucker

MS 06-1 Inverse Acoustic and Electromagnetic Scattering Theory - 30 years later — VG2.101
Chairs: F. Cakoni, H. Haddar
F. Cakoni • T. Hohage • P. Monk • R. Potthast

MS 11 "Defying the Curse of Dimensionality – Theory and Algorithms for Large Dimensional Bayesian Inversion — VG1.108
Chairs: R. Flock, Y. Dong
J. Nitzler • J. Chung • Q. Chen • R. Flock

MS 19-3 Theory and algorithms of super-resolution in imaging and inverse problems — VG3.103
Chairs: H. Ammari, P. Liu
M. Ferreira da Costa • X. Liu • P. Millien • D. Batenkov

MS 22-3 Imaging with Non-Linear Measurements: Tomography and Reconstruction from Phaseless or Folded Data — VG1.101
Chairs: M. Beckmann, R. Beinert, M. Quellmalz
R. Alaifari • A. Bhandari • J. Hagemann • J. N. Ahlers

MS 23-2 Recent developments in reconstruction methods for inverse scattering and electrical impedance tomography — VG1.103
Chairs: R. Griesmaier, N. Hyvönen
R. Griesmaier • N. Hyvönen • R. R. Maity • N. Nasr

MS 26-1 Trends and open problems in cryo electron microscopy — VG3.102
Chairs: C. Esteve-Yague, J. Schwab
V. Debarnot • W. Diepeveen • J. Kileel

MS 30-1 Inverse Problems on Graphs and Machine Learning — VG2.103
Chairs: E. L. K. Blasten, M. Lassas, J. Lu
H. Isozaki • L. Ylinen • J. Lu • D. Sanz-Alonso

Program
WEDNESDAY, 6 SEPT 2023

MS 32-1 Parameter identification in time dependent partial differential equations — VG1.104
Chairs: B. Kaltenbacher, W. Rundell
L. Oksanen • L. Pieronek • P. T. Huynh • T. Nguyen

MS 33-1 Quantifying uncertainty for learned Bayesian models — VG1.105
Chairs: M. M. Betcke, M. Holler
N. Heilenkötter • G. Luo • T. Sahlström • T. I. Liaudat

MS 45-2 Optimal Transport meets Inverse Problems — VG0.111
Chairs: M. Carioni, J.-F. Pietschmann, M. Schlottbom
J. Karlsson • D. Bon • R. Assereto • M. Bonafini

MS 47-3 Scattering and spectral imaging: inverse problems and algorithms — VG3.101
Chairs: E. T. Quinto, G. Rigaud
M. K. Nguyen • J. Webber

MS 53 Uniqueness and stability in inverse problems for partial differential equations — VG3.104
Chairs: S. Foschiatti, E. Francini, E. Sincich
S. Foschiatti • J.-N. Wang • J. Railo • R. Gaburro

11:00 *Coffee Break* — ZHG Foyer

11:20 Plenary Talk — ZHG 011
GEOMETRIC INVERSE PROBLEMS IN 2D: A TRANSPORT TWISTOR PERSPECTIVE
Gabriel Paternain, University of Cambridge, United Kingdom

12:15 **POSTER SESSION** — ZHG Foyer

13:15 *Lunch Break* — Mensa

14:15 SOCIAL EVENTS

18:00 *CONFERENCE DINNER* — "Alte Mensa"

Program
THURSDAY, 7 SEPT 2023

09:00	Plenary Talk **CORRELATION-BASED IMAGING AND INVERSE PROBLEMS IN HELIOSEISMOLOGY** Laurent Gizon, Max Planck Institute for Solar System Research, Göttingen, Germany	ZHG 011
09:50	Plenary Talk **ALWAYS-SCATTERING, NON-SCATTERING, AND INVERSE SCATTERING** Jingni Xiao, Drexel University, United States of America	ZHG 011
10:40	*Coffee Break*	ZHG Foyer
11:10	Plenary Talk **HIGH-DIMENSIONAL NON-LINEAR BAYESIAN INVERSE PROBLEMS** Richard Nickl, University of Cambridge, United Kingdom	ZHG 011
12:00	*Lunch Break*	Mensa
13:30	**PARALLEL SESSION 6**	
	CT 04 Contributed talks *Chair:* C. Aarset B. F. Nielsen • H. Takase • P. R. Mickan • C. H. Wolters	VG2.104
	CT 05 Contributed talks *Chair:* T. Nguyen L. Girometti • U. Hämarik • T. Raus • K. Raik	VG2.105
	CT 06 Contributed talks *Chair:* M. Karimi K. Meth • M. Klibanov • R. Kuess • E. Ibayev	VG2.106
	MS 05-2 Numerical meet statistical methods in inverse problems *Chairs:* M. Hanke, M. Reiß, F. Werner T. Tarvainen • T. Jahn • N. H. Nelsen • H. Li	VG2.102
	MS 06-2 Inverse Acoustic and Electromagnetic Scattering Theory - 30 years later *Chairs:* F. Cakoni, H. Haddar W. Rundell • S. Moskow • J. Sun • M. Bonnet	VG3.103
	MS 10-1 Optimization in Inverse Scattering: from Acoustics to X-rays *Chairs:* R. I. Bot, R. Luke O. Scherzer • R. Luke • D.-K. Nguyen • R. I. Bot	VG1.103
	MS 16-1 Wave propagation and quantitative tomography *Chairs:* L. Mindrinos, L. Veselka S. Hubmer • N. Naujoks • F. Hinterer • F. Parzer	VG0.111

Program
THURSDAY, 7 SEPT 2023

	MS 20-1 Recent advances in inverse problems for elliptic and hyperbolic equations *Chair:* R.-Y. Lai Y. Zhang • Y.-H. Lin • G. Covi • M. Cekic	VG3.104
	MS 24-1 Learned Regularization for SolvingInverse Problems *Chairs:* J. Hertrich, S. Neumayer F. Altekrüger • M. Benning • A. Ebner • S. Mukherjee	VG1.101
	MS 26-2 Trends and open problems in cryo electron microscopy *Chairs:* C. Esteve-Yague, J. Schwab M. A. Gilles • M. Habeck • R. R. Lederman • A. Moscovich	VG3.102
	MS 30-2 Inverse Problems on Graphs and Machine Learning *Chairs:* E. L. K. Blåsten, M. Lassas, J. Lu M. Puthawala • F. Guevara Vasquez • E. L. K. Blåsten • I. Dokmanic	VG2.103
	MS 32-2 Parameter identification in time dependent partial differential equations *Chairs:* B. Kaltenbacher, W. Rundell E. Beretta • É. Soccorsi • W. Rundell	VG1.104
	MS 33-2 Quantifying uncertainty for learned Bayesian models *Chairs:* M. M. Betcke, M. Holler M. Zach • M. Holler • B. Maboudi Afkham • R. Barbano	VG1.105
	MS 36-1 Advances in limited-data X-ray tomography *Chairs:* J. S. Jørgensen, S. Siltanen T. A. Bubba • E. K. K. Karvonen • J. Frikel • F. Bevilacqua	VG3.101
	MS 37-1 Passive imaging in terrestrial and extra-terrestrial seismology *Chairs:* F. Faucher, D. Fournier F. Faucher • B. Militzer • F. J. Simons • M. Campillo	VG1.102
	MS 51-1 Analysis, numerical computation, and uncertainty quantification for stochastic PDE-based inverse problems *Chairs:* M. Karamehmedovic, F. Triki D. Nganyu Tanyu • K. Linder-Steinlein • A. Kirkeby • U. H. Thygesen	VG1.108
15:30	*Coffee Break*	ZHG Foyer
16:00	**PARALLEL SESSION 7**	
	CT 07 Contributed talks *Chair:* C. Aarset T. Klatzer • V. Kaarnioja • C. Kemajou Mbakam • N. Cvetkovic	VG1.105
	CT 08 Contributed talks *Chair:* S. F. Huckemann X. Xie • J. Glaubitz • P. Mi • S. Aleotti	VG2.105
	CT 09 Contributed talks *Chair:* M. Halla B. Mejri • F. Lucka • M. Suhonen • N. Donlon	VG2.106

Program
THURSDAY, 7 SEPT 2023

MS 05-3 Numerical meet statistical methods in inverse problems *Chairs:* M. Hanke, M. Reiß, F. Werner R. Kretschmann • F. Benvenuto • A. Wald • N. Mücke	VG2.102
MS 06-3 Inverse Acoustic and Electromagnetic Scattering Theory - 30 years later *Chairs:* F. Cakoni, H. Haddar D. Gintides • I. Harris • L. Audibert	VG3.103
MS 10-2 Optimization in Inverse Scattering: from Acoustics to X-rays *Chairs:* R. I. Bot, R. Luke P. Ochs • R. Nenov • P. Balazs • D. Lorenz	VG1.103
MS 16-2 Wave propagation and quantitative tomography *Chairs:* L. Mindrinos, L. Veselka K. Sadiq • L. Mindrinos • L. Veselka • N. E. Protonotarios	VG0.111
MS 20-2 Recent advances in inverse problems for elliptic and hyperbolic equations *Chair:* R.-Y. Lai R. Rakesh • I. Harris • T. Zhou	VG3.104
MS 24-2 Learned Regularization for Solving Inverse Problems *Chairs:* J. Hertrich, S. Neumayer S. Neumayer • A. Effland • S. Hurault	VG1.101
MS 26-3 Trends and open problems in cryo electron microscopy *Chairs:* C. Esteve-Yague, J. Schwab B. Toader • Y. Shi • J. Schwab • C. Esteve-Yague	VG3.102
MS 30-3 Inverse Problems on Graphs and Machine Learning *Chairs:* E. L. K. Blåsten, M. Lassas, J. Lu S. R. Arridge	VG2.103
MS 36-2 Advances in limited-data X-ray tomography *Chairs:* J. S. Jørgensen, S. Siltanen C. Arndt • E. Pasca • M. Pasha • T. Uelwer	VG3.101
MS 37-2 Passive imaging in terrestrial and extra-terrestrial seismology *Chairs:* F. Faucher, D. Fournier J. Garnier • M. V. de Hoop • J. C. Neo • B. Müller	VG1.102
MS 46-1 Inverse problems for nonlinear equations *Chairs:* L. Oksanen, T. K. Tyni P. Stefanov • Y. Wang • M. Lassas • G. Uhlmann	VG1.104
MS 48 Robustness and reliablity of Deep Learning for noisy medical imaging *Chairs:* A. Benfenati, E. Morotti D. Bianchi • P. Causin • A. Benfenati • D. Evangelista	VG2.104
MS 51-2 Analysis, numerical computation, and uncertainty quantification for stochastic PDE-based inverse problems *Chairs:* M. Karamehmedovic, F. Triki M. Karamehmedovic • A. Alghamdi • K. Knudsen • K. Ren	VG1.108

Program
FRIDAY, 8 SEPT 2023

09:00	Plenary Talk **INVERSE PROBLEMS FOR WAVE EQUATIONS** Ali Feizmohammadi, University of Toronto, Canada	ZHG 011
09:50	Plenary Talk **ON INVERSE PROBLEMS FOR PIEZOELECTRIC EQUATIONS** Xiang Xu, Zhejiang University, China	ZHG 011
10:40	*Coffee Break*	ZHG Foyer
11:10	Plenary Talk **RECONSTRUCTION OF SPACETIME STRUCTURES IN GENERAL RELATIVITY AND LORENTZIAN GEOMETRY** Yiran Wang, Emory University, USA	ZHG 011
12:00	*Lunch Break*	Mensa
13:30	**PARALLEL SESSION 8**	
	CT 10 Contributed talks *Chair:* G. Plonka-Hoch E. Morina • F. Dunker • M. Pricop-Jeckstadt • R. Huber	VG3.102
	CT 11 Contributed talks *Chair:* H. Li S. Panathale Bheemaiah • C. Aarset • M. Boussâa	VG1.108
	CT 12 Contributed talks *Chair:* F. Werner P. Römer • A. Fannjiang • I. Loris • J. Dora	VG2.104
	MS 06-4 Inverse Acoustic and Electromagnetic Scattering Theory - 30 years later *Chairs:* F. Cakoni, H. Haddar O. Ivanyshyn Yaman • L. Bourgeois • P. Serranho • S. Meng	VG3.103
	MS 07-1 Regularization for Learning from Limited Data: From Theory to Medical Applications *Chairs:* M. Holzleitner, S. Pereverzyev, W. Zellinger D. H. Nguyen • M. Holzleitner • M.-C. Dinu • L. Ratti	VG1.101
	MS 08-1 Integral Operators in Potential Theory and Applications *Chairs:* D. Choi, M. Lim, S. Shipman W.-K. Park • D. Choi • H. Lee • M. Lim	VG2.102

	MS 09 Forward and inverse domain uncertainty quantification *Chairs:* V. Kaarnioja, C. Schillings J. Dölz • A. Lang • J. Zech • L. Scarabosio	VG1.102
	MS 10-3 Optimization in Inverse Scattering: from Acoustics to X-rays *Chairs:* R. I. Bot, R. Luke P. Giselsson • M. Haltmeier • T. Wolf • R. Kenis	VG1.103
	MS 13-1 Stochastic iterative methods for inverse problems *Chairs:* L. Bungert, T. Jahn Z. Zhou • T. Jahn • Q. Jin • A. Celisse	VG0.111
	MS 31-1 Inverse Problems in Elastic Media *Chairs:* A. Aspri, E. Sherina A. Waters • F. Faucher • E. Sherina • E. Beretta	VG3.104
	MS 41-1 Geomathematics *Chair:* J. Ilmavirta A. K. Kykkänen • H. A. Schlüter • J. Ilmavirta • A. Varilly-Alvarado	VG3.101
	MS 46-2 Inverse problems for nonlinear equations *Chairs:* L. Oksanen, T. K. Tyni Y.-H. Lin • T. Tyni • T. Balehowsky • M. Nursultanov	VG1.104
	MS 50-1 Mathematics and Magnetic Resonance Imaging *Chairs:* K. Bredies, C. Clason, M. Uecker F. Knoll • A. Gossard • H. Liu • A. Kofler	VG1.105
	MS 59-1 Advanced Reconstruction and Phase Retrieval in Nano X-ray Tomography *Chairs:* T. Salditt, A. Wald A. Katsevich • A. Oberacker • J. Leuschner • K. S. Morgan	VG2.103
15:30	*Coffee Break*	ZHG Foyer
16:00	**PARALLEL SESSION 9**	
	CT 13 Contributed talks *Chair:* M. Halla T. van Leeuwen • M. A. Boukraa • L. Buchele • J. A. Ramoz Leon	VG2.105
	CT 14 Contributed talks *Chair:* H. Li N. M. Gottschling • O. Krivorotko • A. Abdeljawad	VG2.106 VG1.101
	MS 07-2 Regularization for Learning from Limited Data: From Theory to Medical Applications *Chairs:* M. Holzleitner, S. Pereverzyev, W. Zellinger S. Pereverzyev Jr. • P. Roy • L. Frischauf • W. Zellinger	

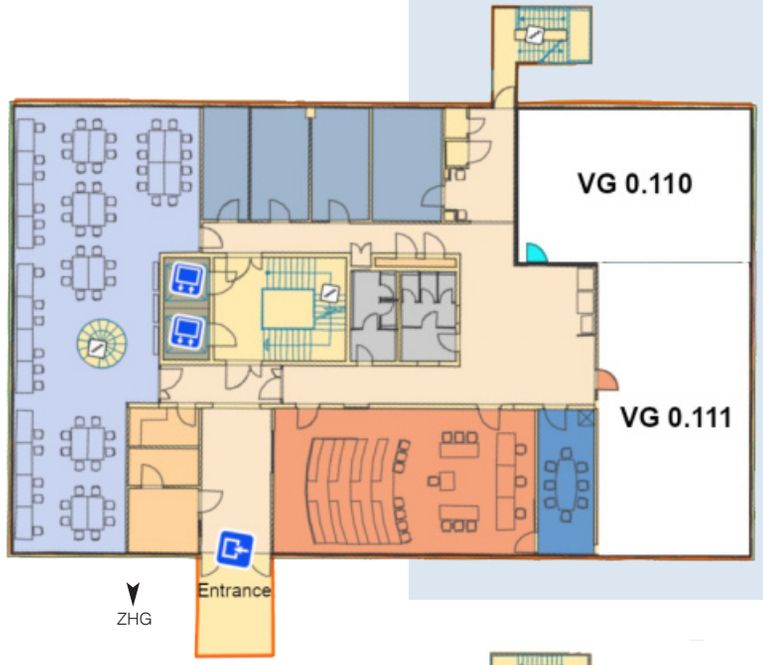
Program
FRIDAY, 8 SEPT 2023

MS 08-2 Integral Operators in Potential Theory and Applications *Chairs:* D. Choi, M. Lim, S. Shipman D. Cho • S. Shipman • K. Ando • H. Liu	VG2.102
MS 10-4 Optimization in Inverse Scattering: from Acoustics to X-rays *Chairs:* R. I. Bot, R. Luke O. A. Soloviev • K. Bredies • C. Molinari	VG1.103
MS 13-2 Stochastic iterative methods for inverse problems *Chairs:* L. Bungert, T. Jahn B. Stankewitz • M. Wahl • N. Mücke • Z. Kereta	VG0.111
MS 31-2 Inverse Problems in Elastic Media *Chairs:* A. Aspri, E. Sherina C. I. Carstea • A. Niclas • P. E. Barbone • L. Seppecher	VG3.104
MS 41-2 Geomathematics *Chair:* J. Ilmavirta E. Cherkaev • Y. Zou • E. Francini	VG3.101
MS 46-3 Inverse problems for nonlinear equations *Chairs:* L. Oksanen, T. K. Tyni T. Liimatainen • K. Krupchyk	VG1.104
MS 50-2 Mathematics and Magnetic Resonance Imaging *Chairs:* K. Bredies, C. Clason, M. Uecker C. Clason • M. Haltmeier • M. Blumenthal • B. Kocurov	VG1.105
MS 59-2 Advanced Reconstruction and Phase Retrieval in Nano X-ray Tomography *Chairs:* T. Salditt, A. Wald J. Shi • M. Langer • R. Mokso • T. Salditt	VG2.103

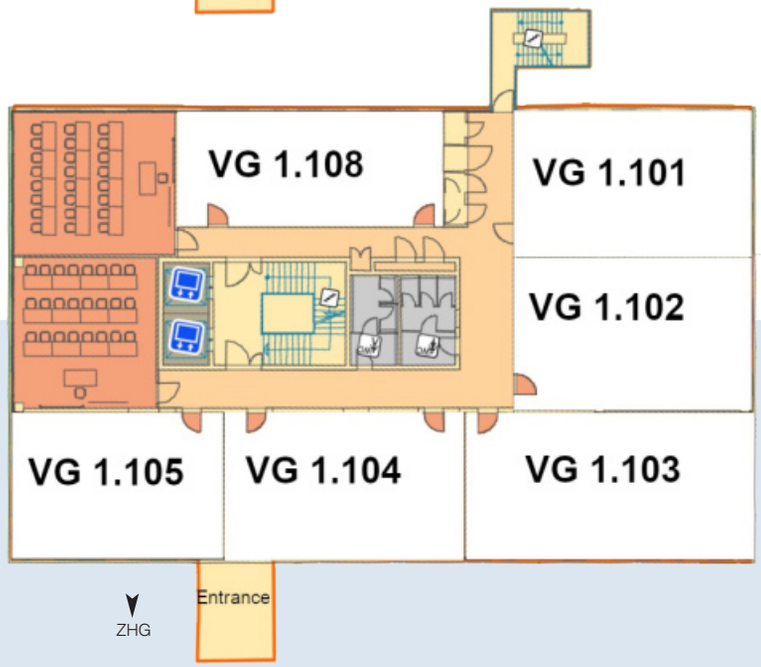
OVERVIEW OF THE ROOM PLANS

VERFÜGUNGSGEBÄUDE (VG)

LEVEL 0



LEVEL 1



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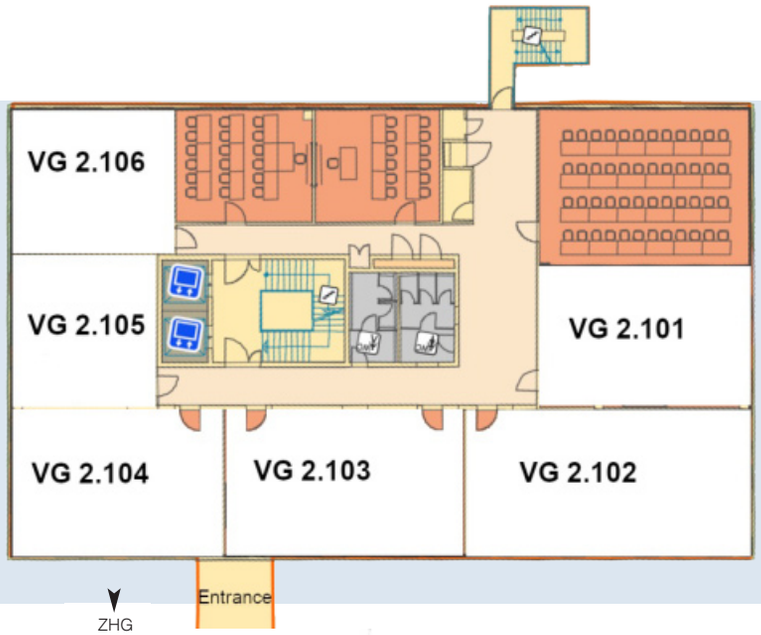
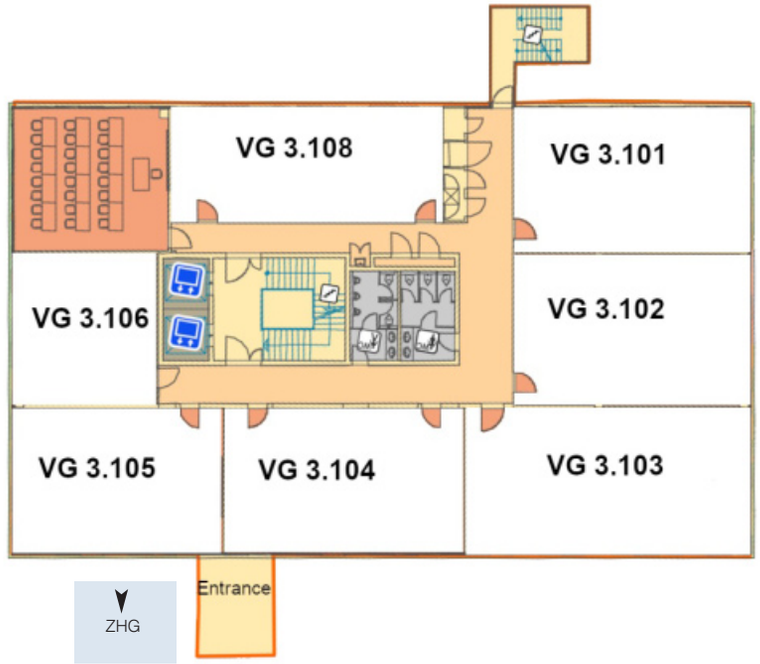


LEVEL 3



SOCIAL PROGRAM

WEDNESDAY AFTERNOON: DETAILS AND MEETING POINTS

On Wednesday afternoon, we will take a break from the scientific program. The different tours and activities start at different times and have different meeting points, so please check your conftool account to see which event you signed up for.

All locations/starting points for the activities can be found on the map on page 26.
For the following tours, **please make your own way to the meeting point:**

FORUM WISSEN
Berliner Straße 28
Near the train station

Start of the tour: **15:00**
Duration: Approx. 60 min

GÖTTINGEN AND ITS MATHEMATICIANS
ZHG – Platz der Göttinger 7

Start of the tour: **14:30**
Duration: Approx. 90 min

GAUSS IN GÖTTINGEN
Tourist Info, Markt 8
Next to Gänseliesel

Start of the tour: **15:00**
Duration: Approx. 120 min

HISTORY OF SCIENCE
Tourist Info, Markt 8
Next to Gänseliesel

Start of the tour: **15:00**
Duration: Approx. 120 min

WALK THROUGH GÖTTINGEN´S UNDERWORLD
Tourist Info, Markt 8 / Next to Gänseliesel

Start of the tour: **15:00**
Duration: Approx. 120 min

AROUND THE "GÄNSELIESEL"
Tourist Info, Markt 8
Next to Gänseliesel

Start of the tour: **15:00**
Duration: Approx. 120 min

HISTORICAL OBSERVATORY
Hist. Sternwarte, Geismar Landstr. 11
Inner courtyard, direction Keplerstr.

Start of the tour: **15:00**
Duration: Approx. 45 min

MANUSCRIPTS AND NOTES OF CARL FRIEDRICH GAUSS
Hist. building SUB, Papendiek 14 / Foyer

Start of the tour: **15:00**
Duration: Approx. 60 min

GÖTTINGEN COLLECTION OF MATHEMATICAL MODELS AND INSTRUMENTS
Mathematical Institute, Bunsenstr. 3-5

Start of the tour: **15:00**
Duration: Approx. 60 min

BIKE TOUR
"marcobike.", Bahnhofsplatz 3
Near the train station

Start of the tour: **15:00**
Duration: Approx. 120 min

Tours, including a shuttle bus
- Physical Cabinet (on north campus, 2.6 km from central campus)
- Max Planck Institute for Solar System Research (also on north campus, 2.6 km from central campus)
- Bouldering hall (about 3 km from central campus).

The bus shuttles leave from the "Blauer Turm" bus stop on Kreuzbergring, close to the ZHG with the bus company "Der Fahrdienst". Please follow the signs from ZHG foyer.
The shuttle buses for the Physical Cabinet and the Max Planck Institute will make a return trip to the ZHG.

BOULDERING
BiG-Bouldern in Göttingen, Levinstr. 13
At the corner of Stresemannstraße

Bus stop „Blauer Turm" (Kreuzbergring)
14:15

Start : **14:45**
Duration: open end

The shuttle to the bouldering hall is only one way, please make your own return arrangements.

PHYSICAL CABINET
Friedrich-Hund-Platz 1

Bus stop „Blauer Turm" (Kreuzbergring)
15:00: group 1 (A-K)
16:00: group 2 (L-Z))

Start of the tour (A-K): **15:15**
Start of the tour (L-Z): **16:15**
Approx. 60 min

MAX PLANCK INSTITUTE FOR SOLAR SYSTEM RESEARCH
Justus-von-Liebig-Weg 3

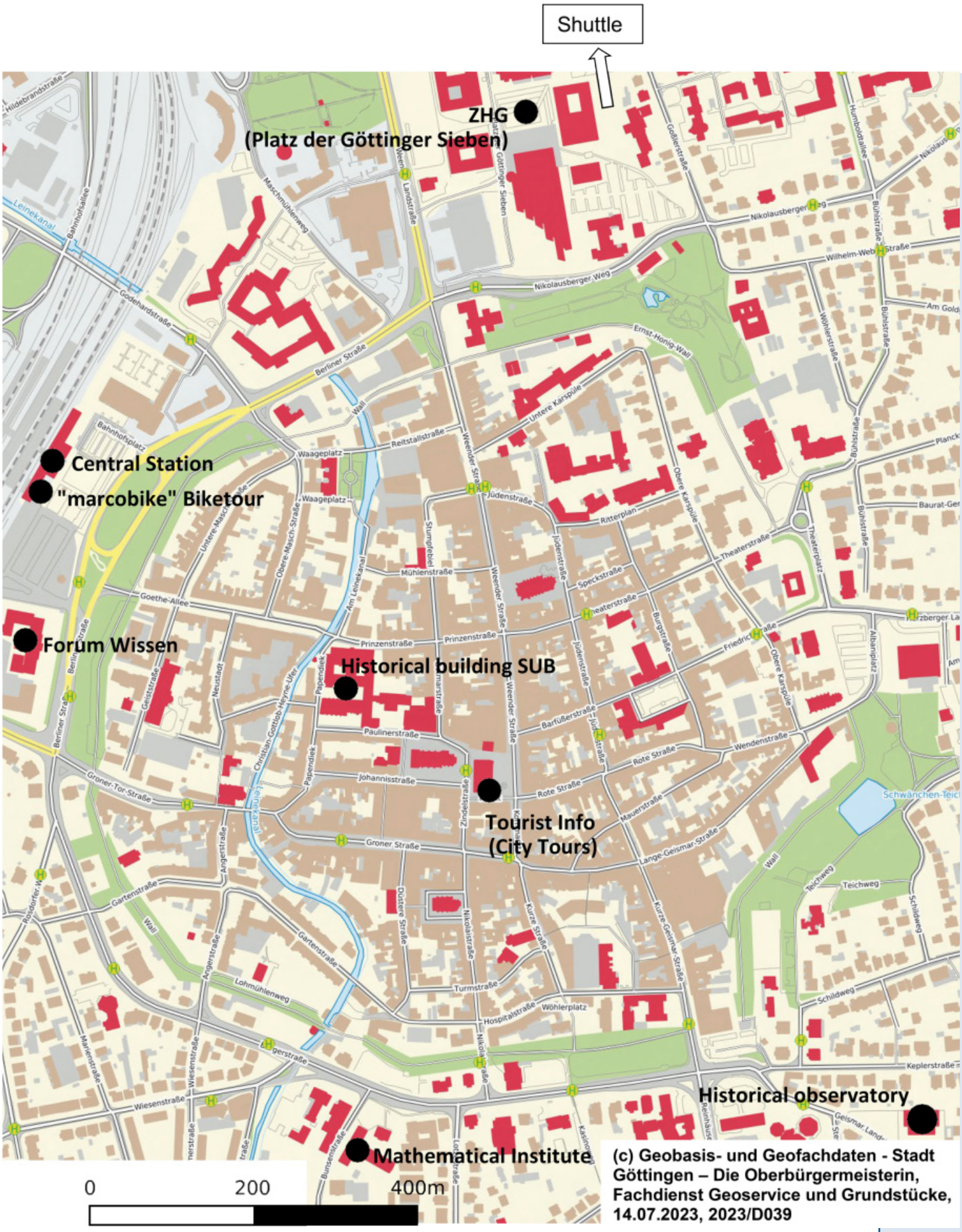
Bus stop „Blauer Turm" (Kreuzbergring)
14:00: group 1 (A-L)
15:30: group 2 (M-Z)

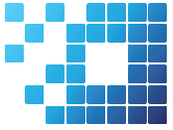
Start of the tour (A-L): **14:15**
Start of the tour (M-Z): **15:45**
Approx. 90 min

CONFERENCE DINNER

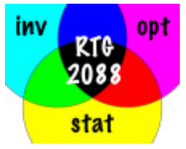
The conference dinner **on Wednesday** is not included in the conference fee. If you have booked this special event, please do not forget to bring your conference badge.
Our President Metin Tolan will give an interesting presentation on "Shaken, not Stirred! – James Bond in the Spotlight of Physics".

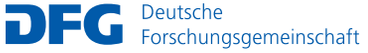
This event will take place in the center of Göttingen at the **Alte Mensa, Wilhelmsplatz 3, 18:00**


Shuttle
ZHG
(Platz der Göttinger Sieben)
Central Station
"marcobike" Biketour
Forum Wissen
Historical building SUB
Tourist Info
(City Tours)
Historical observatory
Mathematical Institute
0
200
400m
(c) Geobasis- und Geofachdaten - Stadt Göttingen – Die Oberbürgermeisterin, Fachdienst Geoservice und Grundstücke, 14.07.2023, 2023/D039



CRC 1456
MATHEMATICS
OF EXPERIMENT





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