

Diffusion Fundamentals



Basic Principles of Theory, Experiment and Application



*Diffusive Spreading in Nature,
Technology and Society*

Programme

August 23rd to 26th, 2015 – Dresden, Germany



**TECHNISCHE
UNIVERSITÄT
DRESDEN**



**Sächsische Akademie
der Wissenschaften
zu Leipzig**



We gratefully acknowledge support by:



TECHNISCHE
UNIVERSITÄT
DRESDEN



Sächsische Akademie
der Wissenschaften
zu Leipzig



Leibniz
Universität
Hannover

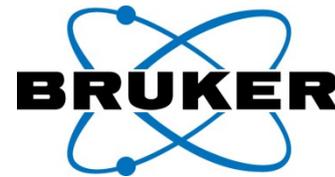


Deutsche
Forschungsgemeinschaft

DFG



Alexander von Humboldt
Stiftung/Foundation



BRUKER



BAD KÖSTRITZ



ExxonMobil

Research and Engineering



FCI
FONDS DER
CHEMISCHEN
INDUSTRIE



Förderverein der
Sächsischen Akademie der
Wissenschaften zu Leipzig e.V.



GESELLSCHAFT VON
FREUNDEN UND FÖRDERERN
DER TU DRESDEN E. V.



Leipziger
Universitätsverlag



RUBOTHERM

PRÄZISIONSMESSTECHNIK GMBH



Vereinigung von
Freunden und Förderern
der Universität Leipzig e.V.

Dear Participants:

Welcome to the *Diffusion Fundamentals VI* International Conference!

We hope you will enjoy this 6th event in a conference series dedicated to a phenomenon, referred to as diffusion or spreading, which is found essentially everywhere in nature, technology and society.

It all started with the celebration of the 150th anniversary of Adolf Fick's and of the 100th anniversary of Albert Einstein's groundbreaking papers on diffusion in 2005 in Leipzig, Germany, the very place where – in the "Annalen der Physik und Chemie" and the "Annalen der Physik" – these papers appeared. It has been the intention, even from this very first event, to refer to diffusion and spreading in its broadest possible sense. The subsequent meetings, organized in L'Aquila, Italy (2007), Athens, Greece (2009), Troy, NY, USA (2011) and Leipzig (2013) again, followed this tradition.

However, the conditions for meeting this aim have never been better than now, in 2015, when the Diffusion Fundamentals conference series is being organized under the auspices of the Saxon Academy of Sciences in Leipzig. As a member of the German Union of Academies of Sciences, within the three federal states (Bundesländer) Saxony, Saxony-Anhalt and Thuringia, its classes comprise Humanities, Natural Sciences and Engineering and, thus, the whole spectrum of disciplines covered in our conference series.

Bringing together scientists from disciplines as different as archaeology, ecology, epidemiology, ethnology, linguistics and sociology with biologists, chemists, physicists, mathematicians and engineers, *Diffusion Fundamentals VI* highlights the astonishingly similar patterns of spreading phenomena that are observed in a wide range of different disciplines. Molecules and atoms may thus be found to have features in common with even animals and plants, just as with abstract entities such as innovation, information and languages. We are very happy that leading scientists in the various fields have accepted our invitation to talk to you during this conference. Jointly with the peculiarities of their topic they will also highlight the features in common with other phenomena of spreading or diffusion. Being well aware of the wide range of different expertise within the audience, they will all do their best to address everybody – seeing its diversity as an opportunity to stimulate a rich, interdisciplinary discussion, rather than an obstacle. There will be plenty of time for discussions, during the sessions, in front of the posters as well as during the breaks and social events.

Following our tradition, both the poster abstracts and short versions of the plenary talks will soon be published in a special volume of the *Diffusion-Fundamentals Online Journal*. We are happy to announce that, now under the auspices of the *Saxon Academy of Sciences*, articles in the *Diffusion-Fundamentals Online Journal* will soon be listed in the

most common databases and search catalogues such as Google Scholar, BASE and Worldcat.

The program resulted from the efforts of many people, including all of you, with your poster contributions and the invited talks. We sincerely thank our partners and sponsors for their generous support and greatly appreciate the most efficient collaboration and support by the *Dresden University of Technology* and the *Saxon Academy of Sciences*, as the organizers of this event, and their members engaged in this project. We are particularly thankful that the first Minister for Higher Education, Research and Culture of Saxony after Germany's reunification, *Hans Joachim Meyer*, honorary member of the Saxon Academy of Sciences, has accepted our invitation for the evening lecture at the beginning of our conference. His talk about "*A Global Language or a World of Languages*" nicely reflects the diversity of phenomena which one may have in mind when considering spreading and diffusion.

During your time here, we also hope that you will enjoy the city of *Dresden* and at least a few of its showplaces. In recent years Dresden has evolved as an internationally recognized center for materials research and technology. The presence of 3 Max-Planck-Institutes, 2 Leibniz-Institutes, 11 Fraunhofer-Institutes, a Helmholtz-Center, and the Technical University belonging to Germany's eleven elite "Universities of Excellence", renders the location as a focal point for interdisciplinary cooperation. The welcome address by *Hans Müller-Steinhagen*, Rector of the *Dresden University of Technology*, to our conference is therefore particularly appreciated.

The Elbe River and the gently rolling landscape between Sächsische Schweiz and Meissen determine the natural environment in which Dresden is embedded with its architectural attractiveness, natural beauty and charming atmosphere. The climate is equally beneficial to the development of the arts and to viticulture. At the same time Dresden is a modern city with the flair of the former Saxon residence, simply a place with lifestyle. Dresden is famous for its baroque architecture (e.g. the Zwinger, Frauenkirche), its theaters (e.g. Semperoper), museums, festivals and events. The Conference Dinner on Tuesday evening will take place in the very heart of this impressive scenery which, moreover, you shall have the opportunity to digest also during the free time and the guided walk on Wednesday afternoon.

Overall, we trust that the multidisciplinary character of the meeting and its scientific and social events will stimulate new ideas and random walks to beautiful and unexpected collaborations.

We wish you an interesting and enjoyable conference!

Armin Bunde, Jürgen Caro, Christian Chmelik, Jörg Kärger, Gero Vogl and Hans Wiesmeth

Content

Editorial and Welcome	1
List of Speakers, Chairs, Organizers and Advisory Board	4
Program of Pre-School " <i>Fundamentals of Diffusion and Spreading</i> "	5
Program of " <i>Diffusion Fundamentals VI</i> "	5
List of Poster Presentations	9
List of Participants	14
Notes on Conference Location with Map and Site Plan	18

Opening Lecture

Hans Joachim Meyer, Minister for Higher Education, Research and Culture of Saxony (ret.)

Invited Speakers

Dirk Brockmann, Berlin
Frank Cichos, Leipzig
Marc-Olivier Coppens, London
Joaquim Fort, Girona
Albrecht Fritzsche, Erlangen
Russel Gray, Jena
Detlef Gronenborn, Mainz
Shlomo Havlin, Ramat Gan

Anne Kandler, London
Rainer Klages, London
Rajamani Krishna, Amsterdam
Klaus Kroy, Leipzig
Ingolf Kühn, Halle
Michael Leitner, Munich
Carsten Lemmen, Geesthacht
Philipp Maass, Osnabrück

Hernán Makse, New York
Christoph Neinhuis, Dresden
Charles Nicholson, New York
William S. Price, Sydney
Martin Schnittler, Greifswald
Manfred Wendisch, Leipzig
Søren Wichmann, Leiden

Conference Chairs

Armin Bunde, University of Giessen
Jürgen Caro, University of Hanover
Christian Chmelik, University of Leipzig

Jörg Kärger, University of Leipzig
Gero Vogl, University of Vienna

Session Chairs

Cornelia Breitkopf, Dresden
Dieter Freude, Leipzig
Petrik Galvosas, Wellington
Sabina Hrabetova, New York
Fabian Jacobs, Bautzen
Grit Kalies, Dresden

Wilfried Konrad, Dresden
Alfred Leipertz, Erlangen
Helmut Mehrer, Münster
Murray A. Moinester, Tel Aviv
Douglas M. Ruthven, Orono

Michael J. Saxton, Davis
Boris B. Straumal, Moscow
Handan Tezel, Ottawa
Rustem Valiullin, Leipzig
Hans Wiesmeth, Dresden

Local Organizing Committee

Jürgen Caro
Cornelia Breitkopf
Eike Brunner

Grit Kalies
Stefan Kaskel
Christoph Neinhuis

Lutz Schiffer
Hans Wiesmeth

Diffusion-Fundamentals Advisory Board

Dezső L. Beke, Debrecen
Stefano Brandani, Edinburgh
Armin Bunde, Giessen
Jürgen Caro, Hanover
Alan Chadwick, Canterbury
Christian Chmelik, Leipzig
Frank Cichos, Leipzig
Marc-Olivier Coppens, London
Gerhard Ertl, Berlin
Dieter Freude, Leipzig
Petrik Galvosas, Wellington

Roger Gläser, Leipzig
Farida Grinberg, Jülich
Paul Heitjans, Hanover
Jörg Kärger, Leipzig
Yossi Klafter, Tel Aviv
Klaus Kroy, Leipzig
Alfred Leipertz, Erlangen
Andreas Mandelis, Toronto
Graeme Murch, Callaghan
Jean Philibert, Paris
William S. Price, Sydney

Douglas M. Ruthven, Orono
Michael J. Saxton, Davis
Gunter Schütz, Jülich
Boris B. Straumal, Moscow
Doros Theodorou, Athens
Rustem Valiullin, Leipzig
Ilpo Vattulainen, Tampere
Gero Vogl, Vienna
George H. Weiss, Bethesda

Pre-School "*Fundamentals of Diffusion and Spreading*":

The conference is preceded by a pre-school on Sunday, August 23rd, introducing into basics of diffusion and spreading.

Sunday, August 23rd, 2015

Pre-School "*Fundamentals of Diffusion and Spreading*"

Lectures, part 1: *Diffusion Step by Step*
12:30 – 14:30 **Armin Bunde** (University of Giessen, Germany),
Jörg Kärger (University of Leipzig, Germany)

14:30 – 15:00 Coffee break

Lectures, part 2: *Diffusion Applications*
15:00 – 17:00 **Jürgen Caro** (University of Hanover, Germany),
Gero Vogl (University of Vienna, Austria)

Diffusion Fundamentals VI – Conference Program

The conference will take place at Dresden University of Technology, Chemistry Building (Bergstraße 66, 01069 Dresden, Germany). The lectures will be given in the **lecture theatre CHE S89** on the ground floor. Maps of the surrounding are shown at the end of the program booklet.

The conference office is located in the foyer of the building. Also the welcome party on Sunday, the lunches, poster sessions and coffee breaks take place in the foyer, next door to the lecture hall.

Sunday, August 23rd, 2015

Welcome Party and Evening Lecture

16:00 Opening of Registration

17:30 – 18:30 Welcome party with refreshments and finger food, part 1

Hans Joachim Meyer
(Minister for Higher Education, Research and Culture of Saxony (ret.), Germany)
18:30 – 19:15 Evening lecture: *A global Language or a World of Languages*
– introduced by **Hans Wiesmeth** (TU Dresden, Vice-President of SAW, Germany) –

19:15 – 20:30 Continuation of welcome party

Monday, August 24th, 2015

Morning Session

Chairs: **Grit Kalies** (Dresden), **Douglas M. Ruthven** (Orono)

09:00 – 09:15 **Hans Müller-Steinhagen** (Rector of TU Dresden, Germany)

Opening of Diffusion Fundamentals VI

– introduced by **Jörg Kärger** (University of Leipzig, Germany) –

09:15 – 09:55 **Rajamani Krishna** (University of Amsterdam, The Netherlands)

Uphill Diffusion

09:55 – 10:35 **Philipp Maass** (University of Osnabrück, Germany)

Diffusive Transport in Non-Equilibrium Steady States

10:35 – 11:05 Coffee break

Chairs: **Handan Tezel** (Ottawa), **Petrik Galvosas** (Wellington)

11:05 – 11:45 **William S. Price** (University of Western Sydney, Australia)

NMR Versatility

Tandem Lecture

11:45 – 12:55 **Klaus Kroy** (University of Leipzig, Germany): *Hot Brownian Motion: Theory*

Frank Cichos (University of Leipzig, Germany): *Hot Brownian Motion: Experiment*

12:55 – 14:30 Lunch break
(during lunch break: meeting book contributors, room 201)

Afternoon Session

Chairs: **Gero Vogl** (Vienna), **Fabian Jacobs** (Bautzen)

14:30 – 15:10 **Anne Kandler** (City University London, UK)
Analysing Language Shift: The Example of Scottish Gaelic

15:10 – 15:50 **Russel Gray** (Max Planck Institute for the Science of Human History, Jena, Germany)
Expansion of Language Families

15:50 – 16:20 Coffee break

Chairs: **Murray A. Moinester** (Tel Aviv), **Dieter Freude** (Leipzig)

16:20 – 17:00 **Joaquim Fort** (University of Girona, Spain)
The Neolithic Transition: Diffusion of People or Diffusion of Culture?

Tandem Lecture

17:00 – 18:10 **Detlef Gronenborn** (University of Mainz, Germany) and
Carsten Lemmen (Helmholtz Centre Geesthacht, Germany)
The Expansion of Farming as Seen from Archaeology and Related Disciplines

18:10 – 21:00 Poster session I with beer and finger food
(optional: continuation meeting book contributors, room 201)

Tuesday, August 25th, 2015

Morning Session

Chairs: **Alfred Leipertz** (Erlangen), **Armin Bunde** (Giessen)

09:00 – 09:40 **Dirk Brockmann** (Humboldt University Berlin, Germany)
Epidemics Spreading

09:40 – 10:20 **Shlomo Havlin** (Bar-Ilan University, Israel)
Spreading of Failures in the Internet and in Power Grids

10:20 – 10:50 Coffee break

Chairs: **Sabina Hrabetova** (New York), **Michael J. Saxton** (Davis)

10:50 – 11:30 **Hernán Makse** (City College of New York, USA)
A New Class of Superspreader: From Twitter, Cities and the Brain

11:30 – 12:10 **Charles Nicholson** (NYU Langone Medical Center, USA)
Brain Structure Revealed by Diffusive Spread of Molecules

12:10 – 14:30 Poster Session II with Lunch
(during lunch break: short meeting Diffusion Fundamentals Advisory Board, room 201)

Afternoon Session

Chairs: **Helmut Mehrer** (Münster), **Rustem Valiullin** (Leipzig)

14:30 – 15:10 **Michael Leitner** (Technical University Munich, Germany)
Dispersal in Plants and Animals: Modelling

15:10 – 15:50 **Martin Schnittler** (University of Greifswald, Germany)
Spore Dispersal in Lower Organisms: From Model Assumptions to Reality

15:50 – 17:00 Tandem Lecture
Christoph Neinhuis (Technical University of Dresden, Germany)
Anita Roth-Nebelsick (State Museum of Natural History Stuttgart, Germany)
Transport Systems in Living Organisms

Free time for an individual walk through Dresden

19:30 – 23:00 Conference Dinner in the restaurant Pulverturm
(located in the historical centre of Dresden next to *Frauenkirche*)

Wednesday, August 26th, 2015

Morning Session

Chairs: **Wilfried Konrad** (Tübingen), **Hans Wiesmeth** (Dresden)

09:00 – 09:40 **Albrecht Fritzsche** (University of Erlangen-Nuremberg, Germany)
Spreading Innovations

09:40 – 10:20 **Manfred Wendisch** (University of Leipzig, Germany)
Diffusion Processes in Atmospheric Physics

10:20 – 10:50 Coffee break

Chairs: **Cornelia Breitkopf** (Dresden), **Boris B. Straumal** (Moscow)

10:50 – 11:30 **Rainer Klages** (Queen Mary University of London, UK)
Search for Food of Birds, Fish and Insects

11:30 – 12:10 **Søren Wichmann** (Leiden University, The Netherlands)
Language Migration: Empirical Data and Modelling

12:10 – 12:25 **Boris Bokstein**
(National University of Science and Technology MISiS, Moscow, Russia)
Short presentation of and invitation to Diffusion Fundamentals VII in Moscow 2017

12:25 – 13:05 **Marc-Olivier Coppens** (University College London, UK)
Nature-Inspired Transport Optimization

13:05 Final Remarks, Quick Lunch

15:00 Optional: Guided walk through the City of Dresden
(meeting point: tram stop "Synagoge", reached by lines 3 and 7)

A Springer textbook with the oral conference contributions is scheduled to appear in December 2016. The transparencies presented during the pre-school will be available already during the conference in the [download section of the website](#).

Poster Presentations

All posters remain on display in the foyer, Monday – Wednesday for continuous viewing. We kindly ask the presenting authors for their presence during the corresponding sessions:

- authors of posters with **odd numbers** during **session I** (Monday, 18:10 – 21:00)
- authors of posters with **even numbers** during **session II** (Tuesday, 12:10 – 14:30)

Poster abstracts may be found online in volume 24 of the *Diffusion-Fundamentals online journal*: http://diffusion.uni-leipzig.de/contents_vol24.php

No.	Title and Authors
1	Mortal creepers searching for a target <i>E. Abad, D. Campos, V. Méndez, S.B. Yuste and K. Lindenberg</i>
2	Reduction of p-Nitrophenol to p-Aminophenol over Supported Monometallic Catalysts as a Model Reaction for Mass-Transfer Investigations <i>M. Al-Najj, M. Goepel, A. Roibu and R. Gläser</i>
3	Adsorption and Desorption Studies of Lysozyme by Thermosensitive Fe ₃ O ₄ -PNIPAM Nanocomposite via Fluorescence Spectroscopy <i>E. Alveroglu, N. İlker, A. Gökçeören and K. Koç</i>
4	Evaluation of CO ₂ diffusion on aluminum based metal organic frameworks <i>D. Angi, A. Güneş Yeresikli, F. Çakıcioğlu-Özkan</i>
5	Current fluctuations in boundary driven diffusive systems <i>T. Becker, K. Nelissen and B. Cleuren</i>
6	Diffusion at tilt grain boundaries in polycrystalline porous materials <i>J.S. Bhatt and M.-O. Coppens</i>
7	Ultra-slow diffusion in processes with preferential relocations to places visited in the past <i>D. Boyer and I. Pineda</i>
8	Application of Maxwell-Stefan equations to characterize silicalite membranes <i>D. Carter, B. Kruczek and F.H. Tezel</i>
9	On the geometrical description of effective diffusion in confined environments: two-dimensional case <i>G. Chacón-Acosta, A. A. García-Chung and L. Dagdug</i>
10	The effect of crystal diversity of nanoporous materials on mass transfer studies <i>J. Cousin Saint Remi, A. Lauerer, G. Baron, C. Chmelik, J. Denayer and J. Kärger</i>

11	Spread of virus infections <i>V.L. de Rioja, J. Fort and N. Isern</i>
12	Composite fuel cell materials studied by MAS PFG NMR diffusometry and MAS NMR spectroscopy <i>N. Dvoyashkina, D. Freude, C.F. Seidler, M. Wark and J. Haase</i>
13	Study of the self-diffusion coefficient in the water-methanol binary mixture from the hydrogen bonding viewpoint using DOSY NMR <i>E. Fadaei and M. Tafazzoli</i>
14	A 2D system of hard needles: event oriented molecular dynamics <i>M.E. Foulaadvand, A. Saiidi and M. Yarifard</i>
15	Water adsorption kinetics and diffusion in dense SAPO-34 layers on porous aluminium fibre structures – macroscopic measurements by a Volumetric Differential Pressure Step Method <i>G. Földner and A. Velte</i>
16	Diffusion of CO ₂ in 5Å-zeolites by Frequency Response – Impact of assumed adsorption mechanisms <i>M. Galinsky and C. Breitkopf</i>
17	On the geometrical description of the effective diffusion in confined environments: 3D channels <i>A.A. Garcia-Chung, G. Chacón-Acosta and L. Dagdug</i>
18	Chaotic diffusion in periodic lattices with repulsive potentials <i>S. Gil, J. Solanpää, T. Hämäläinen, E. Räsänen and R. Klages</i>
19	Diffusion in MOFs: The surface barrier phenomenon <i>L. Heinke</i>
20	Dynamic Light Scattering for the Determination of Thermal and Mutual Diffusivities of Liquids with Dissolved Gases in Chemical and Energy Engineering <i>A. Heller, T.M. Koller, M.H. Rausch, A. Leipertz and A.P. Fröba</i>
21	On the asymptotic behavior of distributions of work performed on diffusion particles in time-varying potentials <i>V. Holubec, D. Lips, A. Ryabov, P. Chvosta and P. Maass</i>
22	A model of anomalous extracellular diffusion: source location matters <i>J. Hrabe, F. Xiao, R. Colbourn and S. Hrabetova</i>
23	Diffusive spread of substance through brain extracellular space in in vitro model of sleep and awake brain states <i>S. Hrabetova, A. Sherpa and F. Xiao</i>
24	Fronts of language replacement <i>N. Isern and J. Fort</i>

25	Computer modeling of atomic clusters formation in grain boundaries <i>A. Itckovich and B. Bokstein</i>
26	Anomalous diffusion with heterogeneity in view of superstatistics <i>Y. Itto</i>
27	Effective diffusion coefficient in one-dimensional heterogeneous solids: a comparison of continuous and discrete lattice models <i>J.R. Kalnins, E.A. Kotomin and V.N. Kuzovkov</i>
28	Stories from the interior of porous materials – recorded by NMR <i>W. Kittler, H. Liu, F. Zong, S. A. Hertel, M. Nogueira d'Eurydice, X. Wang, P. Hosking, M. C. Simpson, T. A. Kuder, F. Laun, M. Hunter, S. Obruchkov and P. Galvosas</i>
29	Phase transitions in driven single-file diffusion of suspended particles <i>J. Kurzhals, M. Dierl and P. Maass</i>
30	Diffusion-controlled kinetics of metallic colloid formation in irradiated Al ₂ O ₃ , MgO and NaCl crystals <i>V.N. Kuzovkov, E.A. Kotomin, A.I. Popov and R. Vila</i>
31	Diffusion and self-assembly of charged nanoparticles in polar media: a competition between short-range and long-range interactions <i>V.N. Kuzovkov, G. Zvejnieks and E.A. Kotomin</i>
32	4 Coupled compartments – an analytical solution for diffusion and reaction kinetics <i>W. Larisch</i>
33	Interference and IR-Microscopy for Studies of Nanoporous Materials: An Insightful View on Intracrystalline Molecular Transport <i>A. Lauerer, C. Chmelik, J. Haase and J. Kärger</i>
34	Calibration of the diffusion coefficients of the FCS standard Rhodamine 6G (Rh6G) in aqueous solutions <i>G. Majer and K. Zick</i>
35	Testing the (time) ^{1/4} quartic root Diffusion Law of Ceramics Rehydroxylation <i>M. Moinester, E. Piasetzky and J. Kärger</i>
36	Transport of isopropanol in H-ZSM5 by impedance spectroscopy <i>T.Q. Nguyen, M. Glorius and C. Breitkopf</i>
37	Investigating the relationship between social learning efficiency and the diffusion of innovations <i>J. Ounsley, K. Laland and G. Ruxton</i>
38	Steady-state multicomponent gas diffusion in conical tubes and pores <i>F. Pille, J. Thöming and T. Veltzke</i>
39	Diffusion and molecular exchange in hollow core-shell silica nanocapsules <i>A. Pochert, D. Schneider, J. Haase, M. Lindén and R. Valiullin</i>

40	Modelling language shift in Carinthia, Austria <i>K. Prochazka and G. Vogl</i>
41	Kinetics of dissolution of liquid Pb nano-inclusions attached to a dislocation in aluminum <i>S.I. Prokofjev, E. Johnson and U. Dahmen</i>
42	Ragweed: diffusional spread and pollen load <i>R. Richter, M. Leitner and G. Vogl</i>
43	Dehydration diffusion of B(OH) ₄ -sodalite investigated by micro-Raman spectroscopy on single crystals and combined TG/IR on powders <i>C.H. Rüscher, F. Kiesel, A. Schulz, L. Schomborg and J.C. Buhl</i>
44	Diffusion Limitations and Effectiveness Factor of Mesoporous and Hierarchically Structured Catalysts for SCR-DeNO _x <i>E. Saraci, R. Arndt, J. Kullmann, D. Enke, T.-A. Meier, D. Belder, M.-O. Coppens and R. Gläser</i>
45	Diffusion coefficient as a function of mass for globular macromolecules <i>M.J. Saxton</i>
46	Collective dynamics in a multi-filament actin bundle <i>J. Schnauß, T. Golde, C. Schuldt, B. U. S. Schmidt, M. Glaser, D. Strehle, C. Heussinger and J. Käs</i>
47	Fluctuation dissipation theorem and Onsager coefficients in driven diffusion systems <i>B. Siemer, V. Holubec, P. Chvosta and P. Maass</i>
48	Dynamics of Linear and Cyclic Chains in Two Dimensions <i>A. Sikorski and P. Polanowski</i>
49	Modelling the geographical origin of rice cultivation in Asia using the Rice Archaeological Database <i>F. Silva, C.J. Stevens, A. Weisskopf, C. Castillo, L. Qin, A. Bevan and D.Q. Fuller</i>
50	Reaction fronts and ambipolar chemical diffusion in oxide crystals <i>M. Sinder, Z. Burshtein and J. Pelleg</i>
51	Adsorptive heat transformation with SAPO-34: diffusion of working fluids water, methanol and ethanol <i>T. Splith, C. Chmelik, F. Stallmach, S.K. Henninger, G. Földner, P.D. Kolokathis, E. Pantatosaki and G.K. Papadopoulos</i>
52	Disentangling Sources of Anomalous Diffusion <i>E. Thiel, F. Flegel and I.M. Sokolov</i>
53	Monitoring the interplay between diffusion and reaction during catalytic conversion in nanoporous materials <i>T. Titze, C. Chmelik, J. Kullmann, L. Prager, E. Miersemann, R. Gläser, D. Enke, J. Weitkamp and J. Kärger</i>
54	Multicomponent gas diffusion in conical tubes <i>T. Veltzke, L. Kiewidt and J. Thöming</i>

55	The application of inverse gas chromatography to investigate diffusion resistance in FCC catalysts <i>D. Wallenstein, C.M. Fougret, S. Brandt and U. Hartmann</i>
56	Optimization of bifunctional catalysts in the presence of diffusion limitations, by using a single particle model and a fixed bed model <i>G. Ye and M.-O. Coppens</i>
57	Diffusion across the Interface of an Liquid-Liquid System <i>T. Zeiner</i>
58	A local composition model for the prediction of mutual diffusion coefficients in binary liquid mixtures from tracer diffusion coefficients <i>Q. Zhu, G.D. Moggridge and C. D'Agostino</i>

"Best Poster Awards" are scheduled for posters highlighting particularly impressively the impact and beauty of interdisciplinarity in diffusion research.

Accepted abstracts shall be published, together with short versions of the invited plenary talks, in the conference proceedings appearing as a special volume of the *Diffusion-Fundamentals Online Journal*.

As already tradition within the Diffusion Fundamentals conference series, all contributors of accepted poster abstracts are invited to submit a full length paper for publication in the *Diffusion-Fundamentals online journal* (diffusion-fundamentals.org). Please use the [template \(.doc\)](#) given in the download section of the conference website and send your paper before December 31st, 2015 by e-mail to abstract@diffusion-fundamentals.org.

List of Participants

Abad, Enrique, Prof.
Universidad de Extremadura, Mérida, Spain

Agatayeva, Aktolkyn A.A.A.
Kazakh-British Technical University, Almaty,
Kazakhstan

Al-Naji, Majd, M.Sc.
University of Leipzig, Germany

Ascheron, Claus E., Dr.
Springer – Senior Editor Physics, Heidelberg,
Germany

Auschra, Sven
University of Leipzig, Germany

Becker, Thijs, Dr.
Hasselt University, Belgium

Bhatt, Jayesh, Dr.
University College London, UK

Bokstein, Boris, Prof.
National University of Science and
Technology MISiS, Moscow, Russia

Breitkopf, Cornelia, Prof.
Dresden University of Technology, Germany

Brockmann, Dirk, Prof.
Humboldt University Berlin, Germany

Brunner, Eike, Prof.
Dresden University of Technology, Germany

Bunde, Armin, Prof.
Justus Liebig University Giessen, Germany

Caro, Juergen W., Prof.
Leibniz University Hannover, Germany

Chacón-Acosta, Guillermo, Dr.
Universidad Autónoma Metropolitana
Cuajimalpa, Mexico City, Mexico

Chmelik, Christian, Dr.
University of Leipzig, Germany

Cichos, Frank, Prof.
University of Leipzig, Germany

Coppens, Marc-Oliver, Prof.
University College London, United Kingdom

Cousin Saint Remi, Julien, Dr.
Vrije Universiteit Brussel, Belgium

de Rioja, Victor L.
University of Girona, Spain

Diesener, Gerald, Dr.
Leipziger Universitätsverlag, Germany

Dvoyashkina, Nina
University of Leipzig, Germany

Ezzouine, Zakaryae
LASMAR, University Moulay Ismail, Meknes,
Morocco

Fadaei Tirani, Elham
Sharif University of Technology, Tehran, Iran

Fort, Joaquim, Prof.
University of Girona, Spain

Foulaadvand, Ebrahim, Dr.
University of Zanjan, Iran

Freude, Dieter, Prof. Dr.
University of Leipzig, Germany

Fritzsche, Albrecht, Prof.
University of Erlangen-Nuremberg, Germany

Földner, Gerrit, Dr.
Fraunhofer Institute Solar Energy Systems
ISE, Freiburg, Germany

Galinsky, Matthias, Dr.
Dresden University of Technology, Germany

Galvosas, Petrik, PD Dr.
Victoria University of Wellington, New
Zealand

Garcia-Chung, Angel A., Dr.
Universidad Autónoma Metropolitana
Iztapalapa, Mexico City, Mexico

Gil Gallegos, Sol S.
Queen Mary University of London, United
Kingdom

Gray, Russel, Prof.
Max Planck Institute for the Science of
Human History, Jena, Germany

Gronenborn, Detlef, Prof.
Roman-German Central Museum /
University of Mainz, Germany

Haase, Jürgen, Prof.
University of Leipzig, Leipzig, Germany

Hare, Vincent J.
University of Oxford

Havlin, Shlomo, Prof.
Bar-Ilan University, Ramat Gan, Israel

Heinke, Lars, Dr.
Karlsruhe Institute of Technology,
Eggenstein-Leopoldshafen, Germany

Hellier, Joshua D.M.
University of Edinburgh, School of Physics
and Astronomy, Scotland

Hrabe, Jan, Dr.
Nathan Kline Institute, Orangeburg, NY, USA

Hrabetova, Sabina, Prof.
SUNY Downstate Medical Center, Brooklyn,
NY, USA

Huster, Daniel, Prof.
University of Leipzig, Germany

Isern, Neus, Dr.
Universitat de Girona, Spain

Itckovich, Aleksei
National University of Science and
Technology MISiS, Moscow, Russia

Itto, Yuichi
Aichi Institute of Technology, Japan

Jacobs, Fabian, Dr.
Sorbisches Institut, Bautzen, Germany

Juayerk, Kenia L.
Universidad Autónoma Metropolitana
Iztapalapa, Mexico City, Mexico

Kalies, Grit, Prof.
HTW University of Applied Sciences Dresden,
Germany

Kandler, Anne, Prof.
City University London, United Kingdom

Kärger, Jörg, Prof.
University of Leipzig, Germany

Kaskel, Stefan, Prof.
Dresden University of Technology, Germany

Kiesel, Florian
Leibniz Universität Hannover, Germany

Klages, Rainer, Prof.
Queen Mary University of London, United
Kingdom

Koç, Kenan, Dr.
Yildiz Technical University, Istanbul, Turkey

Konrad, Wilfried, Prof.
Dresden University of Technology, Germany

Krishna, Rajamani, Prof.
University of Amsterdam, The Netherlands

Kroy, Klaus, Prof.
University of Leipzig, Germany

Kühn, Ingolf, Prof.
Helmholtz Center for Environmental
Research Halle, Germany

Kurzhals, Jan-Magnus
University of Osnabrück, Germany

Kuzovkov, Vladimir, Prof.
Institute of Solid State Physics, University of
Latvia, Riga, Latvia

Larisch, Wolfgang
Helmholtz Centre for Environmental
Research (UFZ), Leipzig, Germany

Lauerer, Alexander
University of Leipzig, Germany

Laurenz, Eric
Fraunhofer Institute Solar Energy Systems
ISE, Freiburg, Germany

Leipertz, Alfred, Prof. Dr.-Ing.
FAU Erlangen - SAOT, Germany

Leitner, Michael, Prof.
Technical University Munich, Germany

Lemmen, Carsten, Dr.
Helmholtz Centre Geesthacht, Germany

Lentz, Sebastian, Prof.
Leibniz Institute for Regional Geography,
Germany

Lips, Dominik
University of Osnabrück, Germany

Maass, Philipp, Prof.
University of Osnabrück, Germany

Majer, Günter, PD Dr.
MPI for Intelligent Systems, Stuttgart,
Germany

Makse, Hernán, Prof.
City College of New York, USA

Mehrer, Helmut, Prof.
University of Münster, Germany

Meyer, Hans Joachim, Prof.
Sächsischer Staatsminister für Wissenschaft
u. Kunst a.D., Berlin, Germany

Miersemann, Erich, Prof.
University of Leipzig, Germany

Mögel, Hans-Jörg, Prof.
TU Bergakademie Freiberg, Germany

Moinester, Murray A., Prof.
Tel Aviv University, Israel

Moinester, Susan
Tel Aviv University, Tel Aviv, Israel

Neinhuis, Christoph, Prof.
Dresden University of Technology, Germany

Nguyen, Tien Quang
Dresden University of Technology, Germany

Nicholson, Charles , Prof.
NYU Langone Medical Center, New York,
USA

Ounsley, James
Universty of St. Andrews and City University
London, United Kingdom

Pille, Fabian
University of Bremen, Germany

Pineda, Inti, Dr.
Universidad Nacional Autonoma de México,
Mexico City, Mexico

Pochert, Alexander
Ulm University, Germany

Popovska-Leipertz, Nadejda, Prof. Dr.-Ing.
ESYTEC GmbH, Erlangen, Germany

Price, William S., Prof.
University of Western Sydney, Australia

Prochazka, Katharina
University of Vienna, Austria

Prokofjev, Sergei I., Dr.
Institute of Solid State Physics RAS,
Chernogolovka, Moscow District, Russia

Rausch, Michael H., Dr.-Ing.
Friedrich-Alexander-Universität Erlangen-
Nürnberg, LTT, Germany

Reichenbach, Christian, Dr.
Quantachrome GmbH & Co. KG,
Odelzhausen, Germany

Richter, Robert
University of Vienna, Austria

Röske, Isolde, Prof. Dr.
Dresden University of Technology, Germany

Roth-Nebelsick, Anita, PD Dr.
State Museum of Natural History Stuttgart,
Germany

Russina, Margarita , Dr.
Helmholtz Zentrum Berlin , Germany

Ruthven, Douglas M., Prof.
University of Maine, Orono, U.S.A.

Saeidi, Azadeh
University of Zanjan, Iran

Saraci, Erisa
University of Leipzig, Germany

Saxton, Michael J., Dr.
Dept Biochemistry & Mol Med, Davis, United
States

Sayed, Hoiyam A., Dr.
Sudan Atomic Energy Commission,
Khartoum, Sudan

Schnauß, Jörg
University of Leipzig, Germany

Schnittler, Martin, Prof.
University of Greifswald, Germany

Siemer, Bernd
Universität Osnabrück, Germany

Sikorski, Andrzej, Dr.
University of Warsaw, Poland

Silva, Fabio, Dr.
UCL Archaeology, London, United Kingdom

Sinder, Misha, Dr.
Ben Gurion University of the Negev, Beer
Sheva, Israel

Splith, Tobias
University of Leipzig, Germany

Straumal, Boris B., Prof.
Institute of Solid State Physics RAS, Moscow,
Russia

Teutsch, Georg, Prof.
Helmholtz Centre for Environmental
Research Leipzig, Germany

Tezel, Handan, Prof.
University of Ottawa, Canada

Thiel, Felix
Humboldt University Berlin, Germany

Titze, Tobias
University of Leipzig, Germany

Tomas, Jürgen, Prof.
Otto von Guericke University Magdeburg,
Germany

Valiullin, Rustem, PD Dr.
University of Leipzig, Germany

van der Linden, Arjan, MSc.
Radboud University, Utrecht, Netherlands

Veltzke, Thomas, Dr.
University of Bremen, Germany

Vogl, Gero, Prof.
University of Vienna, Austria

Wallenstein, Dieter
Grace GmbH & Co KG, Worms, Germany

Wendisch, Manfred, Prof.
University of Leipzig, Germany

Wichmann, Søren, Prof.
Leiden University, The Netherlands

Wiesmeth, Hans, Prof.
Dresden University of Technology, Germany

Ye, Guanghua
University College London, United Kingdom

Zegeling, Paul A., Dr.
Utrecht University, The Netherlands

Zeiner, Tim, Dr.-Ing.
TU Dortmund, Germany

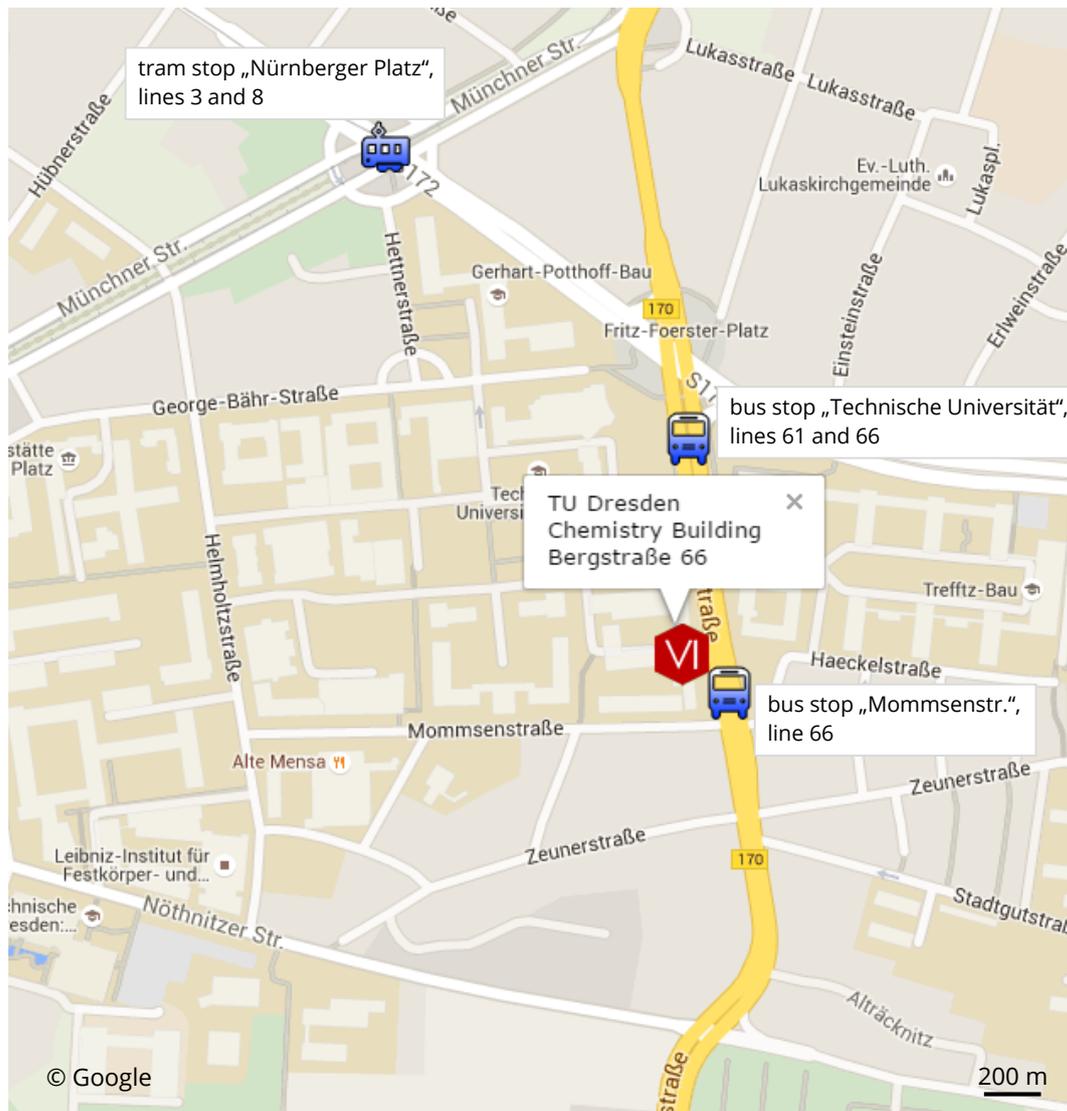
Zhu, Qingyu
University of Cambridge, United Kingdom

Zick, Klaus, Dr.
Bruker BioSpin GmbH, Rheinstetten,
Germany

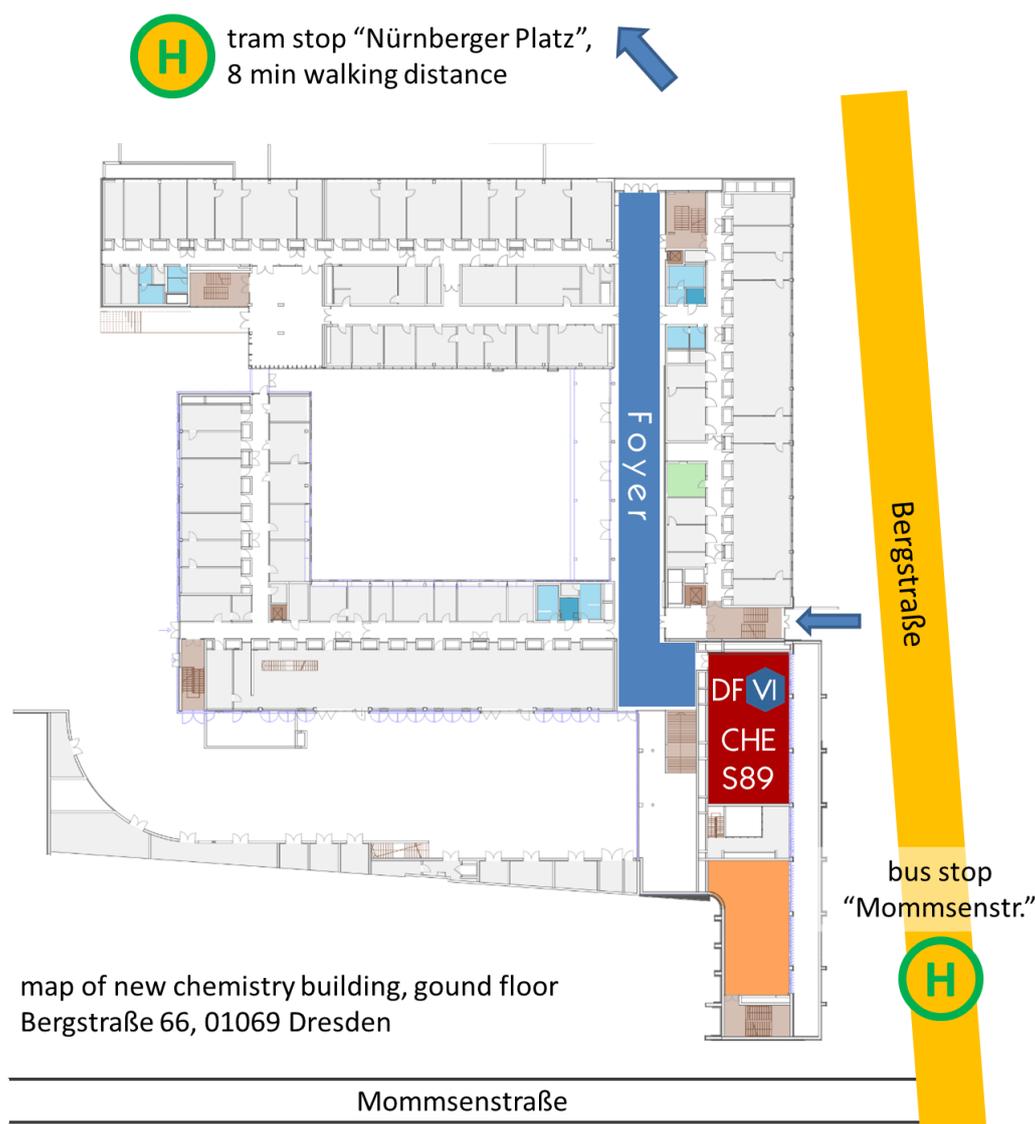
Location of Diffusion Fundamentals VI

The conference will take place at: *Dresden University of Technology, Chemistry Building, lecture theatre CHE S89, Bergstraße 66, 01069 Dresden, Germany.*

The new chemistry building can be accessed using tram lines 3 and 8 (tram stop "Nürnberger Platz") or by the bus lines 66 (bus stops "Mommsenstraße" or "Technische Universität") and 61 (bus stop "Technische Universität").



Don't forget to validate your ticket when entering the bus or tram. The fare for a single journey ticket is 2.20 €. Price-conscious travellers can buy four single tickets in one at a discount (8 €). For short trips (distances up to the fourth stop after entering trams and buses) it is worth buying a 4-trip ticket for short journeys (5.50 €). Tickets can be purchased at ticket machines at all main stops. On buses, drivers sell tickets themselves. They can only provide you with the main ticket types and take only suitable money. General information on the Dresden public transportation system, schedules of tram and bus lines and the tickets can be found at www.dvb.de.



The lectures will be given in the lecture theatre CHE S89 on the ground floor. The conference office is located in the foyer of the building. Also the Welcome Party on Sunday, the lunches, poster sessions and coffee breaks take place in the foyer, next door to the lecture hall.

The conference dinner on Tuesday 25th will take place at the restaurant "Pulverturm" which is located in the historical centre of Dresden next to *Frauenkirche* (see  symbol on the back cover). Nearby tram stops are "Synagoge" (lines 3 and 7), "Pirnaischer Platz" (lines 1, 2, 3, 4, 7 and 12) and "Altstadt" (lines 1, 2 and 4). From the conference site you may take tram line 3 from "NürnbergER Platz" (direction "Dresden Wilder Mann") to "Pirnaischer Platz" or "Synagoge" (5 or 6 stops, respectively). The walking distance from main train station is about 25 min (ca. 2 km).

We gratefully acknowledge support by:



TECHNISCHE
UNIVERSITÄT
DRESDEN



Sächsische Akademie
der Wissenschaften
zu Leipzig



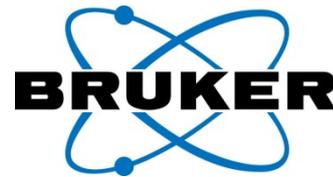
Leibniz
Universität
Hannover

Deutsche
Forschungsgemeinschaft

DFG



Alexander von Humboldt
Stiftung/Foundation



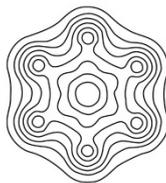
BRUKER



BAD KÖSTRITZ

ExxonMobil

Research and Engineering



FCI
FONDS DER
CHEMISCHEN
INDUSTRIE

Förderverein der
Sächsischen Akademie der
Wissenschaften zu Leipzig e.V.



GESELLSCHAFT VON
FREUNDEN UND FÖRDERERN
DER TU DRESDEN E. V.



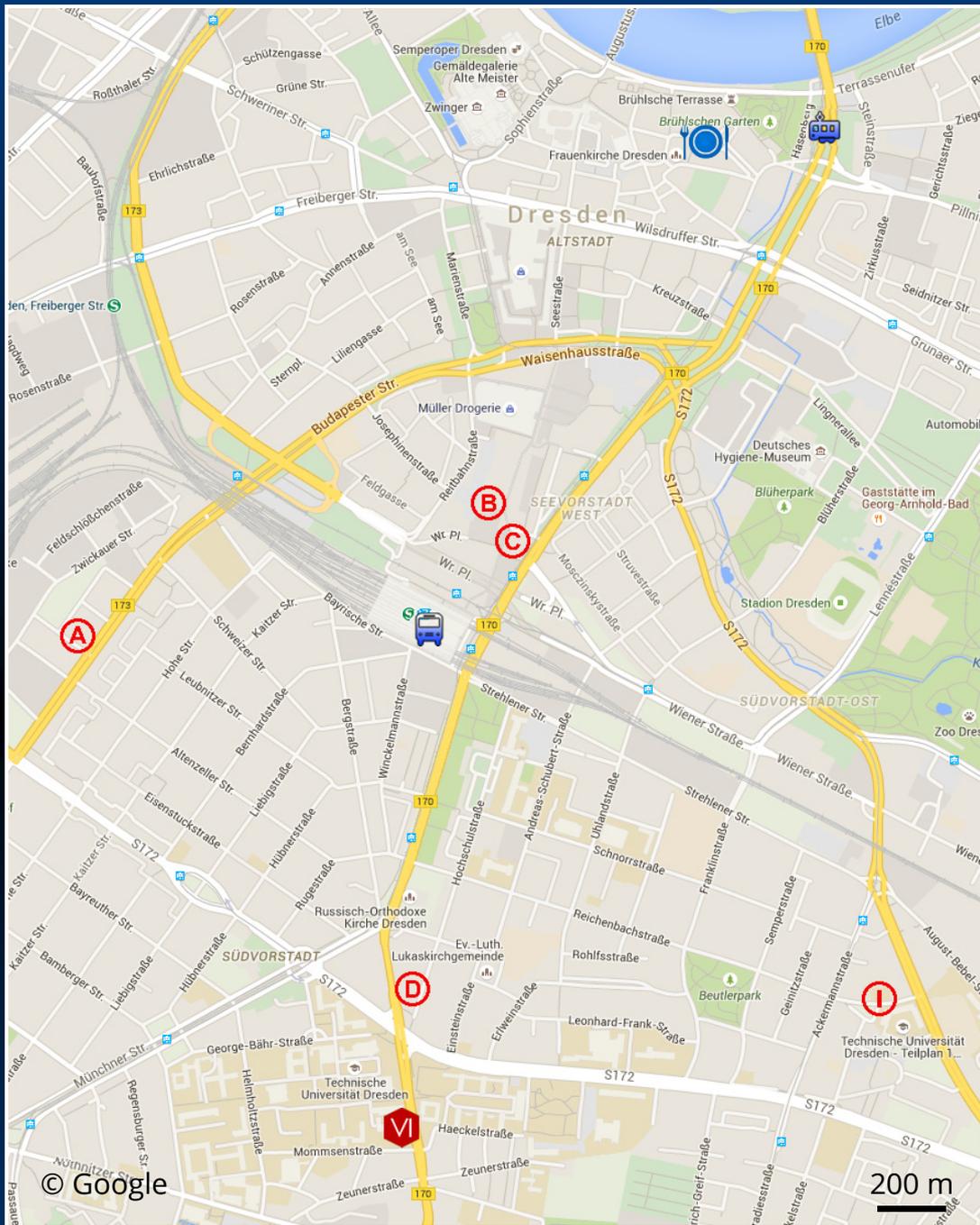
Leipziger
Universitätsverlag



RUBOTHERM
PRÄZISIONSMESSTECHNIK GMBH

Vereinigung von
Freunden und Förderern
der Universität Leipzig e.V.

Map of Dresden



- | | | | |
|---|----------------------------|---|----------------------|
|  | ACHAT Comfort Dresden |  | Conference Venue |
|  | Ibis Hotels Dresden |  | Conference Dinner |
|  | Pullman Dresden Newa |  | Main Train Station |
|  | International Guesthouse |  | Tram Stop "Synagoge" |
|  | Guesthouse "Am Weberplatz" | | |