



## Second Circular

Continuing a very successful series of nine conferences in Europe and the Americas, we cordially invite you to join us for the jubilee conference Diffusion Fundamentals X, which will be held in Tashkent, Uzbekistan, from September 6 to September 8, 2023, as our first visit to Asia in this series.

## Scope

Random movement (commonly referred to as diffusion) occurs anywhere in our world, covering both microscopic and macroscopic time and length scales. It is observed with atoms and molecules as the elementary constituents of our matter just as with biological species in our environment and with, finally, us human beings and our material and immaterial “products”. As a common feature, it appears in the spreading behavior of the “objects” considered in various areas. Observation, classification, and comprehension of these phenomena are thus among the main objectives for scientists in the different disciplines, in humanities, social and natural sciences, and engineering. Bringing together scholars from economics, archaeology, ecology, epidemics, ethnology, linguistics, political science and sociology with biologists, chemists, physicists, mathematicians and engineers, *Diffusion Fundamentals X* strives to create an exciting exchange of ideas. It turns out that covering the particular challenges within each of these various disciplines uncover astonishingly similar patterns of spreading phenomena.

## Venue

Tashkent, the capital of Uzbekistan, is renowned for its vibrant cityscape and rich cultural heritage as one of the leading trading centers along the Silk Road. As a preferred destination for regional and international conferences, Tashkent offers a multitude of attractions that make it an ideal host for the upcoming Diffusion Fundamentals conference at New Uzbekistan University.

The venue's prime location grants attendees convenient access to a variety of captivating sites. Within close proximity, you'll find remarkable landmarks such as the Tashkent TV Tower, offering panoramic views of the cityscape. The historic Chorsu Bazaar awaits, with its bustling atmosphere and diverse array of local goods. For a deeper dive into Uzbekistan's history, the State Museum of History of Uzbekistan showcases fascinating artifacts and exhibitions. Tashkent also boasts beautiful parks where attendees can unwind and appreciate the city's natural beauty. The Alisher Navoi Park, named after the renowned poet, offers serene walking paths and lush greenery, while the Japanese Garden provides a tranquil escape from the urban hustle and bustle. Immerse yourself in Tashkent's cultural treasures by visiting the Navoi Opera and Ballet Theater, known for its exceptional performances, or explore the exquisite Islamic architecture of the Kukeldash Madrasah. The Independence Square, a symbolic gathering place, stands as a testament to Uzbekistan's history and resilience.

In conclusion, Tashkent's captivating attractions, favorable weather conditions, and strategic location make it an exceptional choice for hosting conferences, such as the upcoming Diffusion Fundamentals conference at New Uzbekistan University. Attendees can immerse themselves in the city's rich cultural heritage, explore its iconic landmarks, and enjoy the warmth and hospitality of Uzbekistan.

## Contributions

Following the conference format as started with DF VIII in Erlangen, 2019, the conference will comprise invited talks, poster sessions and workshops. Prior to the poster presentations, short oral plenary talks will be given by the poster presenters (for details see "Abstract Submission" further below). The workshops are scheduled to be performed in the manner of "round table discussions", following one or a couple of introductory talks. Topics so far considered include "Diffusion in Nanoporous Materials" (in continuation of an IUPAC initiative on this topic) and "Diffusion of and in language". Conference participants are asked to indicate their interest in participating in one of these workshops at the beginning of the conference. Interest in active participation - i.e. with your own short presentation - is very welcome. In this case, please let the conference secretariat (see "Contact" further below) know of your interest as soon as possible.

## Confirmed Invited Speakers and Tentative Titles of Talks

1.	Rafal Abdank-Kozubski (Jagiellonian University)	Diffusion-controlled Phenomena in Condensed Matter
2.	Kadir Gulamov (Academy of Science of Uzbekistan)	TBD
3.	Larry Blume (Cornell University)	Diffusion of information in social networks
4.	Marc-Olivier Coppens (UCL)	Nature-Inspired Transport Optimization
5.	Paul Castañeda Dower (University of Wisconsin)	Control through Empowerment: Evidence from Nation- Building in Soviet Central Asia
6.	Steven Durlauf (University of Chicago)	Diffusion of socioeconomic influences across generations
7.	Andreas Paul Fröba (Universität Erlangen-Nürnberg)	Photon Correlation Spectroscopy to Characterize Diffusion
8.	Albrecht Fritzsche (Rabat Business School)	Basic Topological Structures for the Diffusion of Innovations
9.	Felix Hagemeyer (Leipzig University)	Interactions and Exchange Processes as Driving Forces of Social Development in Ancient Palestine
10	Paul Heitjans (Leibniz University Hannover)	Better Battery Electrolytes by Optimizing Ion Transport
11	Aren M. Maeir (Bar Ilan University)	Movement of Artifacts, People and Ideas in Antiquity
12	Ran Nathan (Hebrew University of Jerusalem)	Elucidating the Mean Drivers that Shape Movements of Plants and Animals in the Wild
13	Antoine Parent (University of Paris 8)	The diffusion of the Great Fear, France 1789. A view from cliometrics and complexity
14	Jean-Philippe Platteau (University of Namur)	Institutional innovations: their origins and diffusion mechanisms
15	Rudolf Stichweh (University of Bonn)	Migration and the Evolution of World Society
16	Ulrich Tallarek (Philipps-Universität Marburg)	Multiscale Simulation of Sorption and Diffusion in Porous Media
17	Shlomo Weber (Southern Methodist University)	Diffusion and Acquisition of Languages
18	Hans Wiesmeth (Saxon Academy of Sciences in Leipzig)	Circular Economy
19	Monika Zin, (Saxon Academy of Sciences)	Routes of Trade and More: about the Diffusion of Western Art and Indian Tales

## Workshops

### Workshop on “Diffusion of and in Language”

Chairs: Gero Vogl and Uwe Junghanns

A language is a system of elements organized in modules, viz. lexicon, morphology, syntax, semantics, and phonology. They interact in forming structure, which is the basis both for pronunciation and interpretation. Thus, human individuals are able to exchange mental contents via sound. The linguistic systems change over time. How does this happen and why? Does diffusion play a role here?

In the modern world, languages do not exist in isolation. The contact between speech communities one way or other changes the languages involved. Words are “borrowed”, ways of expression “catch on”, etc. Seen from within one particular language, the effects can be captured as externally-induced spreading processes.

Language Shift is a diffusion phenomenon: a “stronger” language, be it stronger because spoken by the majority in the relevant region or because of its higher “prestige” will tend to push back other languages. Often the “weaker” language is completely extinguished, but sometimes it retreats to language islands where it survives with astonishing longevity. History is full with extinguished languages, be it the Etruscan, the dominating language in the Toscana down to Rome before Latin replaced it, or the Celtic languages in Central and Western Europe. Even nowadays languages in Europe are on retreat, as e.g. Gaelic in Scotland, Welsh in Wales or Slovenian in Carinthia. Others have or had successfully retreated to strong language islands, as e.g. German in Austrian Silesia or in Southern Hungary. Methods from physics and mathematics start to deal with these phenomena trying to contribute to the question of how to help the minority languages in surviving.

However, there is a second type of phenomena in natural languages that need to be investigated. Properties, features, and functions may spread within one and the same linguistic system. A cover term for this would be internally-induced spreading processes. So far these have not been treated under the aspect of diffusion as defined within the natural sciences. Adopting the concept of diffusion for linguistics might be a promising approach. Going down this path involves two main tasks: (i) take stock of the relevant phenomena and give them an adequate description (manners, paths, and bounds), and (ii) come up with explanations for language-internal diffusion (stimuli and effects).

The workshop is meant to serve as a platform for the discussion of both Language Shift and Language-internal Diffusion. Researchers from various disciplines and fields – the natural as well as the social sciences in the broad sense – are invited to contribute their ideas concerning languages and the way they undergo changes. Ideally, the workshop will tackle one general issue: In what way can disciplines other than linguistics be helpful for and, thus, contribute to the description and explanation of linguistic diffusion?

Contributions from the auditory are welcome – ideally combined with an information on the content to [gero.vogl@univie.ac.at](mailto:gero.vogl@univie.ac.at) or [uwe.junghanns@phil.uni-goettingen.de](mailto:uwe.junghanns@phil.uni-goettingen.de) prior to the conference.

### „Diffusion in Nanoporous Materials”

Chair: Jörg Kärger, Leipzig University

Nanoporous materials are key to numerous environmentally friendly technologies, notably including their low-waste application for material separation, conversion and storage. In all these applications, performance can never be faster than allowed by the rate of molecular exchange between their interior and their surroundings. As a result of the complex structure of such systems, a multitude of different processes can contribute to overall transport. Their selective determination is often a great challenge for the experimenter and prone to misjudgement. The workshop will present the results obtained in an IUPAC initiative to overcome the difficulties involved, including a brief presentation of the different measurement techniques that can be used and the assistance that theoretical concepts can provide. Contributions from the auditory are welcome - ideally combined with an information on the content to [kaerger@physik.uni-leipzig.de](mailto:kaerger@physik.uni-leipzig.de), prior to the conference.

## Excursion and Cultural Activities

During the conference in Tashkent, participants will have free time to explore the city's captivating attractions. The conference staff will provide valuable recommendations for local restaurants, cultural sites, and other points of interest. Within walking distance of the venue, attendees can discover remarkable attractions like the Navoi Opera and Ballet Theater, the State Museum of History of Uzbekistan, and the tranquil botanical garden. Tashkent offers reliable public transportation, but many popular attractions are easily accessible on foot. Guests can indulge in a delightful blend of traditional Uzbek cuisine and international flavors at the city's diverse range of restaurants. Tashkent's vibrant cityscape, cultural landmarks, and culinary treasures ensure a memorable experience for conference attendees at New Uzbekistan University.

## Important Dates of the 2<sup>nd</sup> circular

July 31 <sup>th</sup>	Abstract submission deadline
Before August 10 <sup>th</sup>	Final Announcement Paypal payment deadline
August 20 <sup>th</sup>	Cancellation request deadline, where 100% of the amount paid minus a handling fee of 50 € will be refunded.  For cash payments, we kindly request a 50 euros fee for cancellations made after the deadline via Paypal. This policy is necessary as the local organization needs to book catering and venue arrangements for a specific number of attendees, and advance payments are required by Tashkent.
September 6th - 8th	Diffusion Fundamentals X event in Tashkent

## Travel and Accommodation

Our conference staff is available to assist you in securing accommodation conveniently located within walking distance or in close proximity to the conference venue. But you can also book the accommodation on your own. (Venue is New Uzbekistan University, 100007 Tashkent, Mustaqillik ave. 54) Additionally, the city offers excellent accessibility to public transportation and taxi services, ensuring convenient travel throughout the area.

These are a few hotels conveniently situated near the venue at **54 Mustaqillik Avenue in Tashkent**. You can utilize Google Maps to explore hotels in the vicinity. Additionally, feel free to explore other nearby hotels through booking websites based on your preferences and desired location.

- Panarams Hotel in Tashkent - 2 BoyKurgon Street, Tashkent (\$\$\$\$)
- Wellness Hotel Spa - 72 Kibray street, Tashkent (\$\$\$)
- Shoh Polan Hotel - 131 Parkent street, Tashkent (\$\$\$)
- Asli Makon Hotel - 160B, str Buyuk Ipak Yuli Road, Tashkent (\$\$)
- Sayohat Hotel in Tashkent - 111-117, Buyuk Ipak Yuli Road, Tashkent (\$\$)
- Sayohat-Sari Hotel - 115 Buyuk Ipak Yuli, Tashkent (\$)

Kindly inform **Dinara Datbayeva (dinaraiub@gmail.com)** about your reservation details and the number of individuals involved. This information will assist in organizing various activities that depend on the number of participants, such as coffee breaks and city tours.

## Registration

The conference fee includes all catering during the conference comprising the conference dinner, city tour, organizational matters during the conference such as badges, printing materials, IT support and etc. You can make the payment for the conference fee **in Tashkent upon arrival with cash or through PayPal using the email address [dinaraiub@gmail.com](mailto:dinaraiub@gmail.com)**. Although it's not the conventional method, the organizers have chosen PayPal as an alternative due to difficulties in transferring funds between different countries. Cash upon arrival is also accepted. You can write to Dinara Datbayeva ([dinaraiub@gmail.com](mailto:dinaraiub@gmail.com)) about details.

Conference Fee	Payment, until August 10 <sup>th</sup> , 2023 or upon arrival
Full Delegate	400 €
Student/PhD	300 €
Accomp. Person	130 €

If a cancellation request is received before August 20<sup>th</sup>, 2023, 100% of the amount paid minus a handling fee of 50 € will be refunded. Please send your request for cancellation to [dinaraiub@gmail.com](mailto:dinaraiub@gmail.com)

## Abstract Submission

Please submit your poster abstract until **July 31<sup>st</sup>, 2023 by e-mail to [abstract@diffusion-fundamentals.org](mailto:abstract@diffusion-fundamentals.org)**. Please use the abstract template (.docx) supplied in the download section of the conference website for submission. The length is limited to two A4 pages.

Posters should fit in DIN A0 portrait format (width: 84.1 cm, height 118.9 cm).

Abstracts of the plenary talks and poster abstracts shall be published under CC BY 4.0 license in the conference proceedings appearing as a special volume of the Diffusion-Fundamentals Online Journal.

## Local Organization

Shlomo Weber, Hans Wiesmeth, Christian Chmelik, Bakhtiyor Yuldashev, Khasan Redjaboev, Dinara Datbayeva

## Scientific Committee

Shlomo Weber, Hans Wiesmeth, Jörg Kärger, Gero Vogl, Kadir Gulamov, Bobomurat Ahmedov, Bahodir Ahmedov

## Diffusion-Fundamentals Advisory Board

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### Conference Secretariat

#### Greater Eurasia Research Centre (GEAR) office in Central Asia

GEAR is an initiative of Hong Kong University of Science and Technology that aims to become a leading research and educational platform focused on the study of synergies in Eurasia, and the impact of their sustainable development on the rest countries of Eurasia. This objective is to be achieved through interdisciplinary research, education and policy innovation.

#### New Uzbekistan University (NewUU)

NewUU is the first public autonomous university in Uzbekistan. New Uzbekistan University is a world-class university with a mission to develop top talents across the country and around the world to nurture future leaders and innovators. NewUU is dedicated to encouraging the best academic and professional practices through an integrated multi-disciplinary curriculum and research.

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