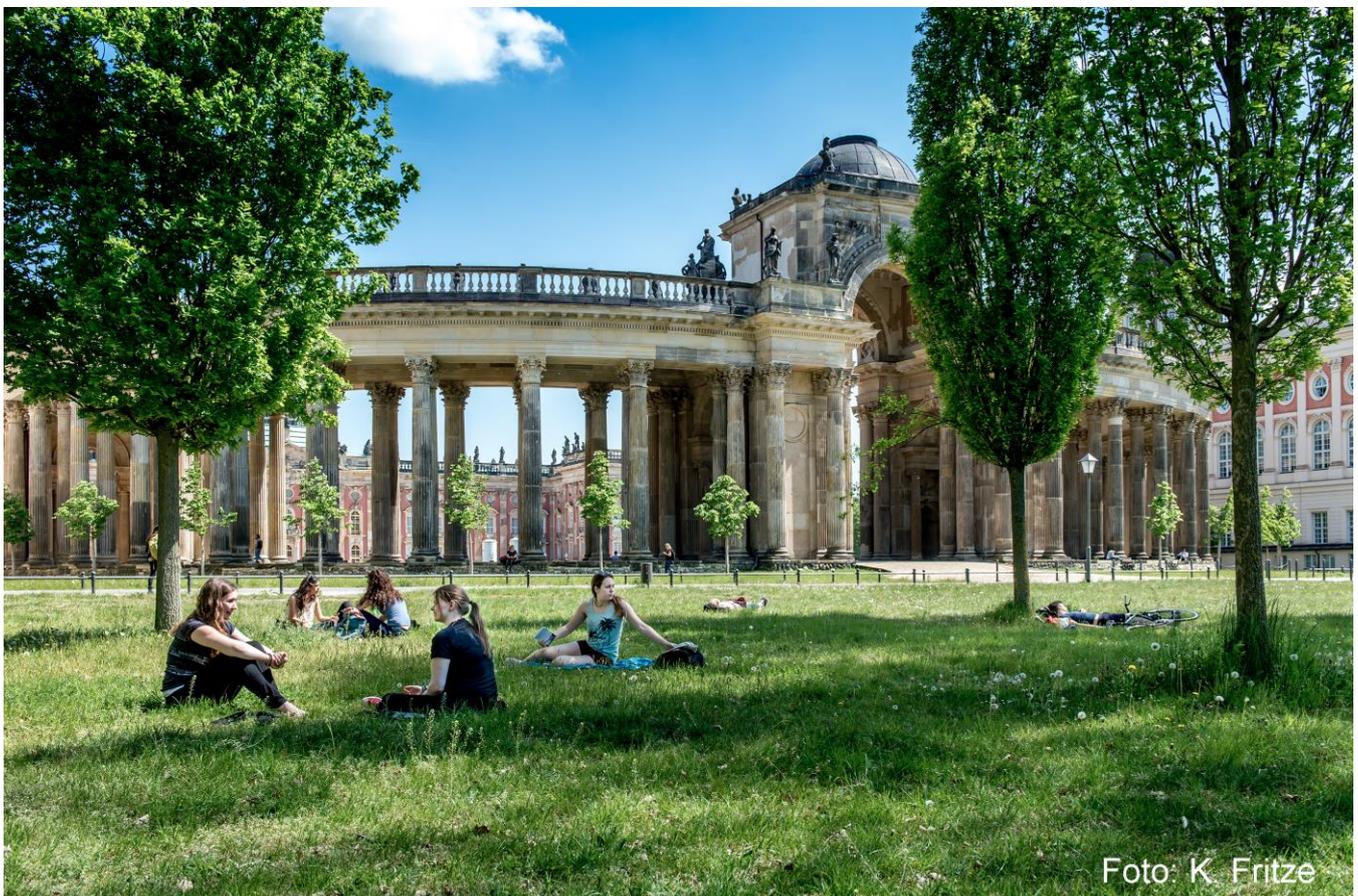


International Conference
"Dynamics of Systems on the Nanoscale"

DySoN Conference 2018

Steigenberger Hotel Sanssouci, Potsdam, Germany
October 08 - 12, 2018



SECOND ANNOUNCEMENT

Scope

The Fifth International Conference "Dynamics of Systems on the Nanoscale" (DySoN 2018) will be held in Potsdam, Germany 8th -12th October, 2018 in the Steigenberger Hotel Sanssouci located directly in the historical city centre of Potsdam. The Conference will be preceded on 6th and 7th October by the comprehensive training course on multiscale modelling of Meso-Bio-Nano (MBN) systems molecular structure and dynamics with MBN Explorer and MBN Studio – the powerful and universal software being developed by the MBN Research Center in Frankfurt am Main, Germany.

This DySoN conference has been built upon a series of International Symposia "Atomic Cluster Collisions: structure and dynamics from the nuclear to the biological scale" (ISACC 2003, ISACC 2007, ISACC 2008, ISACC 2009, ISACC 2011, ISACC 2013 and ISACC2015, see isacc-portal.org). During these meetings it has become clear that there is a need for an interdisciplinary conference covering a broader range of topics than just atomic cluster collisions, related to the Dynamics of Systems on a Nanoscale. Therefore, in 2010 the ISACC International Advisory Committee decided to launch a new conference series under the title "Dynamics of Systems on the Nanoscale". The first DySoN conference took place at the National Research Council, Rome, Italy in 2010, the second conference was held in St. Petersburg, Russia in 2012, the third one was held in Edinburgh, UK in 2014, and the fourth one in Bad Ems, Germany in 2016. DySoN 2018 is the fifth conference in this series.

The dynamics on the nanoscale determines a wealth of physical, chemical and biological processes and applications such as the macroscale properties of materials, the catalytical activity of interfaces and the interaction of radiation with biological systems. However, its exploration and description requires unified experimental and theoretical approaches from different fields across the physical, chemical and biological disciplines. A thorough understanding of these systems allows for an exploitation of novel phenomena on the nanoscale leading to an optimization of existing processes or the exploration of novel applications.

Consequently, the DySoN 2018 Conference will promote the growth and exchange of interdisciplinary scientific information on the structure formation and dynamics of animate and inanimate matter on the nanometre scale. There are many examples of complex many-body systems of micro- and nanometre scale size exhibiting unique features, properties and functions. These systems may have very different nature and origin, e.g. atomic and molecular clusters, nanostructures, ensembles of nanoparticles, nanomaterials, biomolecules, biomolecular and mesoscopic systems. A detailed understanding of the structure and dynamics of these systems on the nanometre scale is a difficult and fundamental task, the solution of which is necessary in numerous applications of nano- and biotechnology, materials science and medicine.

Although mesoscopic, nano- and biomolecular systems differ in their nature and origin, a number of fundamental problems are common to all of them: What are the underlying principles of self-organization and self-assembly of matter at the micro- and nano-scale? Are these principles classical or quantum? How does chemical or biological function emerge at the nano- and the meso-scale in systems with different origins? What criteria govern the stability of these systems? How do their properties change as a function of size and composition? How are their properties altered by their environment? What are the interactions of nanomaterials with biological systems? How can interactions of radiation with chemical and biological systems be exploited to create novel materials or enable novel forms of medical treatment? Seeking answers to these questions is at the core of the interdisciplinary DySoN conference.

We have identified urgent key interdisciplinary topics within the nanosciences that are currently discussed within different communities. These include structure formation on the nanoscale, application of nanoparticles in cancer radiation therapies, nanocatalysis and in general the biomedical applications of radiation. The aim of this conference is to bring experts from these different communities together in order foster interdisciplinary discussions and to initiate novel research directions.

Important Dates

Distribution of the first announcement	December 15, 2017
Distribution of the second announcement	April 03, 2018
Deadline for registration	August 01, 2018
Deadline for abstract submission	August 01, 2018
Deadline for hotel reservation	August 07, 2018

Dyson 2018 Program

Monday, 08th October 2018

12 ⁰⁰ - 16 ⁰⁰	Participants registration
14 ³⁰ - 14 ⁴⁵	DySoN 2018 Opening Ilko Bald and Ilia A. Solov'yov
14 ⁴⁵ - 16 ¹⁵	<i>Afternoon session I: Low-energy electron induced processes</i>
16 ¹⁵ - 16 ⁴⁵	Coffee break
16 ⁴⁵ - 18 ¹⁵	<i>Afternoon session II: Self-organization and radiation-induced structure formation on the nanoscale</i>
19 ⁰⁰ - 21 ⁰⁰	Welcome Reception

Tuesday, 09th October 2018

9 ³⁰ - 11 ⁰⁰	<i>Morning session I: Thermal, optical and magnetic properties of nanosystems</i>
11 ⁰⁰ - 11 ³⁰	Coffee break
11 ³⁰ - 13 ⁰⁰	<i>Morning session II: Nanoscale phase and morphological transitions</i>
13 ⁰⁰ - 14 ³⁰	Lunch
14 ³⁰ - 16 ⁰⁰	<i>Afternoon session I: Cluster and biomolecular ensembles, complexes, nanostructured materials</i>
16 ⁰⁰ - 18 ⁰⁰	Coffee and poster session

Wednesday, 10th October 2018

9 ³⁰ - 11 ⁰⁰	<i>Morning session I: Irradiation driven transformations of complex molecular systems and biodamage</i>
11 ⁰⁰ - 11 ³⁰	Coffee break
11 ³⁰ - 13 ⁰⁰	<i>Morning session II: Interaction of radiation with biosystems: mechanisms and applications</i>
13 ⁰⁰ - 13 ¹⁵	Conference photo
13 ¹⁵ - 14 ³⁰	Lunch
14 ³⁰ - 16 ⁰⁰	<i>Afternoon Session I: Biomedical applications of radiation</i>
17 ⁰⁰ - 19 ⁰⁰	Conference tour

Thursday, 11th October 2018

9 ³⁰ - 11 ⁰⁰	<i>Morning session I: Electron & spin transport in molecular systems</i>
11 ⁰⁰ - 11 ³⁰	Coffee break
11 ³⁰ - 13 ⁰⁰	<i>Morning Session II: Reactivity and nanocatalysis</i>
13 ⁰⁰ - 14 ³⁰	Lunch
14 ³⁰ - 16 ⁰⁰	<i>Afternoon Session I: Collision processes, fusion, fission, fragmentation</i>
16 ⁰⁰ - 16 ³⁰	Coffee break
16 ³⁰ - 18 ⁰⁰	<i>Afternoon session I: Propagation of particles through medium</i>
19 ⁰⁰ - 22 ³⁰	Conference Dinner

Friday, 12th October 2018

9 ³⁰ - 11 ⁰⁰	<i>Morning session I: Nanoparticle based radiation therapies and radiosensitizers</i>
11 ⁰⁰ - 11 ³⁰	Coffee break
11 ³⁰ - 13 ⁰⁰	<i>Morning session II: Structure and dynamics of clusters, nanoparticles and biomolecules</i>
13 ⁰⁰ - 13 ¹⁵	Final Discussion and Conference Closing
13 ⁰⁰ - 14 ³⁰	Lunch and Departure

Confirmed Speakers

Amitava Adhikari, Oakland University, USA

TBA

Rodolphe Antoine, Université de Lyon, France

New routes to enhance emission properties of gold nanoclusters

Ilko Bald, University of Potsdam, Germany

Sensitization of DNA towards low-energy electrons by incorporation of halogenated nucleobases

Victor Balykin, Institute of Spectroscopy, Troitzk, Russia

Planar plasmonic nanooptics: from basic elements to quantum generator

Sadia Bari, European XFEL GmbH, Deutsches Elektronen-Synchrotron (DESY), Germany

Gas-phase biomolecules studied by mass spectrometry at advanced light sources

Florent Calvo, University Joseph Fourier, Grenoble, France

Interplay between external field and temperature on the structure of magnetic colloidal clusters

Emiliano Cortés

Plasmon induced chemistry

Stephan Denifl, University of Innsbruck, Austria

Low-energy electron scattering from radiosensitizers: associative vs. dissociative attachment

Pablo de Vera, University of Murcia, Spain

Molecular dynamics simulations of ion-induced shock wave effects in biological media

Sam Eden, Open University Milton Keynes, UK

TBA

Wolfgang Ernst, Graz University of Technology, Graz, Austria

Core-shell nanoparticles prepared in superfluid Helium droplets: Structure, phase transition, and alloy formation

Juraj Fedor, J. Heyrovský Institute of Physical Chemistry v.v.i., Czech Academy of Sciences, Czech Republic

TBA

Franco Gianturco, The University of Innsbruck, Austria

Chemistry in the cold: ionic reactions in traps and processes in the interstellar environments

Jon Golding, The Open University, Milton Keynes, UK

Chemo-radiotherapeutic nanoparticles for cancer radiotherapy

Steffen Greulich, Lucas Burigo, Mark Bangert, Oliver Jäkel, German Cancer Research Center, Germany

Implementation strategies of RBE modelling in current treatment planning for (proton and) carbon ion beams

Armin Götzhäuser, Bielefeld University, Germany

Carbon nanomembranes (CNMs): radiation-induced 2D materials for separation technology

Markus Gühr, University of Potsdam, Germany

Molecular dynamics - a perspective using time resolved electron diffraction and soft x-ray spectroscopy

Vincenzo Guidi, Università di Ferrara, Italy

Experiments with channeling of charged particle beams through oriented crystals

Oddur Ingolfsson, University of Iceland, Iceland

Dissociative electron attachment as potential means for cross-linking of self-assembled monolayers

Vadim Ivanov, St. Petersburg Polytechnical University, Russia

Channeling and radiation of electrons and positrons in bent and periodically bent Si and diamond crystals

Julius Jellinek, Argonne National Laboratory, USA

Universality in size-driven evolution towards metallicity

Daniel Kattnig, University of Exeter, UK

Magnetic field effects in three-spin system

Shiv Khanna, Virginia Commonwealth University, USA

Nano-catalysts for Cross-coupling reactions, CH bond activation, and CO oxidation reactions

Ulrich Kleinekathöfer, Jacobs University Bremen, Germany

Environmental effects on charge transport through molecular wires: a multi-scale approach

Jaroslav Kocisek, J. Heyrovský Institute of Physical Chemistry v.v.i., Czech Academy of Sciences, Czech Republic

Electron attachment in biomolecular models of increasing complexity

Janina Kopyra, Siedlce University, Poland

Electron driven fragmentation of heterocyclic organic compounds

Andrei Korol, MBN Research Center, Germany

Simulations of charged particles channeling and radiation phenomena by means of MBN Explorer and MBN Studio

Nigel Mason, The Open University, Milton Keynes, UK

Studies of thin films and ice layers; Applications from Astrochemistry to Nanolithography

Andreas Mauracher, Universität Innsbruck, Austria

Title: Modelling of short DNA single strands

Mehran Mostafavi, Université Paris-Sud, France

Ultrafast electron scavenging by gold nano-particles in aqueous solution

Richard E Palmer, Swansea University, United Kingdom

Massive scale-up of cluster beam deposition (CBD) for the production of functional nanomaterials

Sylwia Ptasinska, University of Notre Dame, USA

TBA

Robin Schürmann, University of Potsdam, Germany

Hot-electron transfer induced reactions

Jefferson Shinpaugh, East Carolina University, USA

Irradiating cells treated with nanoparticle additives with MeV protons – sensitizing and protective effects

Andrey V. Solov'yov, MBN Research Center, Frankfurt am Main, Germany

Dynamics of Meso-Bio-Nano (MBN) systems as seen from computational approach with MBN Explorer

Ilia Solov'yov, University of Southern Denmark, Denmark

Modeling electron transfers in biological systems: applications and examples

Eugene Surdutovich, Oakland University, USA

Multiscale approach to the physics of ion-beam cancer therapy

Alexey Verkhovtsev, German Cancer Research Center (DKFZ), Germany

Collision and fragmentation processes involving nanoparticles and biomolecules

Conference Venue and Travel Information

The Conference will be hosted by [Steigenberger Hotel Sanssouci, Potsdam, Germany](#).



Potsdam, located southwest of Berlin, is a former seat of the royal Prussian residence and a UNESCO World Heritage Site with an exquisite garden. The symbol of Potsdam is Sanssouci Palace. Frederick the Great had it built according to his own sketches in the middle of the 18th century and it was soon given the nickname of the 'Prussian Versailles'. The palace is only five minutes' walk from Steigenberger Hotel Sanssouci, an ideal starting point for a tour of Potsdam.

On Wednesday, 10th October, a guided tour through the old town of Potsdam will be offered including a short visit of the planetarium located in Potsdam's Dutch quarter.

You can get to Potsdam by public transport from the airports Berlin-Tegel or Berlin-Schoenefeld (both located about 30 km from Potsdam) or from Berlin Main Station.

From Airport Berlin-Tegel: There are many options by public transport. One option is: Take the Bus 109 to "S-Bahnhof Charlottenburg". From there take the S-Bahn S7 to Potsdam Main Station (about 55 min, Ticket "Berlin ABC"). Taxi fare is about 60 €.

From Airport Berlin-Schoenefeld: Take the regional train RB22 to Potsdam Main Station (about 50 min, Ticket "Berlin BC"). Taxi fare is about 60 €.

From Berlin Main Station: Take the regional train RE 1 (25 min) or S-Bahn S7 (40 min) to Potsdam Main Station (Ticket "Berlin ABC").

From Potsdam Main Station: Take the Tram 91, Bus 605 or Bus 606 to "Luisenplatz Süd" (6-8 min, Ticket "Potsdam AB" or ticket Berlin region "C" is also valid within Potsdam). The Hotel Steigenberger is towards the entrance to Park Sanssouci.

Detailed train schedules and tickets can be found at www.bahn.de or www.vbb.de. Potsdam can be reached by car from the A10 and the A115 Highway.

Registration

The number of rooms reserved at the hotels for conference participants is limited. We advise the participants to register for the conference and the hotel at the earliest convenience.

Conference Fee: 400 €

Undergraduate and PhD students: 250 €

The fee includes the book of abstracts, coffee breaks, lunches, the conference reception, a sightseeing tour and the conference dinner. The payment to the order of "DySoN 2018" can be made

By bank transfer to

Bank Account Name:	MBN Research Center gGmbH
Bank name:	Deutsche Bank
Branch Address:	Hauptstr. 561462 Koenigstein Germany
IBAN:	DE15500700240137588000
BIC:	DEUTDE33HAN

Please quote your **NAME** and **DYSON** on the transfer.

Please ensure there are **NO** charges to us.

A limited **financial support** will be available for invited speakers and student participants upon request. Please contact us before the 1st June if you wish to be considered for a conference participation grant.

Abstract Submission

Abstracts should be submitted electronically not later than August 01, 2018. Please send your abstracts to dyson.conference@gmail.com with the title "DySoN 2018 Abstract". The abstracts are to be supplied by the authors typewritten in camera-ready form in A4 format (210x297 mm). The length of the abstract should not exceed two pages. The abstract template with more detailed preparation guidelines is available for download [here](#). Please note that we accept files in the MS Word document format. Upon abstract submission, please indicate whether the abstract is intended for an oral contribution (invited or contributed), or a poster presentation.

Accommodation

Please book accommodation directly with the [Hotel Steigenberger, Potsdam, Germany](#) and quote "DYSON" to book a single room for 109 € per night and a double room for 129 € per night, see also the [link on the Conference site](#). The rooms are being held until 7th of August 2018, and will then be released so please book early. If a cheaper accommodation is required, we recommend the B&B hotel close to Potsdam Main Station.

Official Invitation and Visa

Conference participants are advised to check the passport and visa requirements for travel to Germany.

Conference Language

The language of the conference is English.

International Advisory Committee

- ◆ A.V. Solov'yov (MBN Research Center, Frankfurt am Main Germany), **Chair**
- ◆ C. Bréchinac (Laboratoire Aime Cotton, CNRS, Orsay, France)
- ◆ M. Broyer (University of Lyon, Lyon, France)
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- ◆ F. Gianturco (The University of Innsbruck, Innsbruck, Austria)
- ◆ J. Jellinek (Argonne National Laboratory, Argonne, Illinois, USA)
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- ◆ N. Mason (The Open University, Milton Keynes, UK)
- ◆ E. Surdutovich (Oakland University, Rochester, MI, USA)

Organizing Committee

- ◆ Ilko Bald (University of Potsdam, Potsdam, Germany), **Co-Chair**
- ◆ Ilija A. Solov'yov (University of Southern Denmark, Odense, Denmark), **Co-Chair**

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DySoN Conference Web Page

Updated information on the conference is available at the following internet address:

<http://www.dyson-conference.org>

Conference e-mail

dyson.conference@gmail.com

Sponsors

The conference will be held under the auspices of the following sponsors:

- ◆ MBN Research Center, Frankfurt am Main, Germany
- ◆ University of Potsdam, Potsdam, Germany
- ◆ University of Southern Denmark, Odense, Denmark
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- ◆ Deutsche Forschungsgemeinschaft (DFG)