

**International Conference**  
*"Dynamics of Systems on the Nanoscale"*

*DySoN Conference 2016*

Häcker's Grand Hotel, Bad Ems, Germany  
October 03 - 07, 2016



**DYSON**  
**2016**

**FIRST ANNOUNCEMENT**

## Scope

The Fourth International Conference "Dynamics of Systems on the Nanoscale" (DySoN 2016) will be held in Bad Ems, Germany 3rd -7th October, 2016 at the historical Häcker's Grand Hotel. The Conference will be followed on 8th and 9th October with 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](http://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. DySoN 2016 is the fourth conference in this series.

The DySoN 2016 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, material 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 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? Seeking answers to these questions is at the core of a new interdisciplinary field that lies at the intersection of physics, chemistry and biology, a field now entitled Meso-Bio-Nano (MBN) Science.

Experimental, theoretical and applied aspects of these problems will be discussed at the DySoN 2016 Conference. Particular attention will be devoted to dynamical phenomena and many-body effects taking place in various MBN systems on the nanoscale, which include problems of structure formation, fusion and fission, collision and fragmentation, surfaces and interfaces, collective electron excitations, reactivity, nanoscale phase and morphological transitions, irradiation driven transformations of complex molecular systems and biodamage, channelling phenomena and many more.

DySoN 2016 aims also at highlighting the breakthroughs achieved within the currently running COST Action CM1301 CELINA- "Chemistry for ELectron-Initiated Nanolithography", and the project FP7-ITN-ARGENT-608163- "Advanced Radiotherapy, Generated by Exploiting Nanoprocesses and Technologies". The latter project inherited and extended the scopes of the recently ended COST Action Nano-IBCT- "Nanoscale insights into ion-beam cancer therapy" towards the understanding of nanoparticle impacts on biological systems and related biomedical applications. Therefore, DySoN 2016 will continue traditions of the earlier Nano-IBCT Conference series.

Also the mini-workshop "Periodically bent crystals for crystalline undulators" held within the HORIZON 2020 RISE-PEARL-690991 project will be linked to DySoN 2016. The research areas represented by the mentioned European projects overlap strongly with the Topical Areas of the DySoN Conference listed below in this announcement.

Finally, DySoN 2016 will provide a platform to host discussions about current and future research challenges and initiatives within the DySoN Conference Topical Areas.

Proceedings of the DySoN 2016 Conference will be published in the dedicated Topical Issue of the [European Physical Journal D: Atomic, Molecular, Optical and Plasma Physics](#)

## Sponsors

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

- ◆ MBN Research Center, Frankfurt am Main, Germany
- ◆ HORIZON 2020 RISE-PEARL-690991
- ◆ FP7-ITN-ARGENT- 608163
- ◆ Springer

## Important Dates

Distribution of the first announcement	February 23, 2016
Distribution of the second announcement	June 15, 2016
Deadline for registration	August 01, 2016
Deadline for abstract submission	August 01, 2016

## Scientific Program

The scientific program for this conference will consist of interdisciplinary sessions, which will include invited lectures, review talks and progress reports. A number of hot topic reports will be chosen by the International Advisory Committee of the DySoN 2016 from the submitted abstracts. Other contributions will be presented in a poster session. Suggestions about possible candidates for invited speakers should be sent to the Chairman of the DySoN 2016. The list of invited speakers will be distributed with the second announcement.

## Topical Areas of DySoN Conference:

- ◆ Structure and dynamics of clusters, nanoparticles, biomolecules and bio-nano systems
- ◆ Clustering and self-organization on the nanoscale
- ◆ Cluster and biomolecular ensembles, complexes, nanostructured materials
- ◆ Surfaces and interfaces
- ◆ Nanoscale phase and morphological molecular transitions
- ◆ Reactivity and nanocatalysis
- ◆ Thermal, optical and magnetic properties of nanosystems
- ◆ Electron & spin transport in molecular systems
- ◆ Collision processes, fusion, fission, fragmentation
- ◆ Propagation of particles through medium
- ◆ Irradiation driven transformations of complex molecular systems and biodamage

## Conference Program

*Monday, 03 October 2016*

	<b>Registration, Afternoon Scientific Programme and Welcome Reception</b>
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*Tuesday, 04 October 2016*

	<b>Scientific Programme</b>
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*Wednesday, 05 October 2016*

	<b>Scientific Programme and Conference Excursion</b>
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*Thursday, 06 October 2016*

	<b>Scientific Programme and Conference Dinner</b>
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*Friday, 07 October 2016*

	<b>Morning Scientific Programme and Departure after Lunch</b>
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## Conference Venue and Travel Information

The Conference will be hosted by [Häcker's Grand Hotel, Bad Ems, Germany](#).



Bad Ems is located approximately 100 kilometers to the north-west from Frankfurt and 100 kilometers to the south from Cologne. You can get to Bad Ems by train from the Frankfurt Airport ([www.frankfurt-airport.com](http://www.frankfurt-airport.com)) or Cologne/Bonn Airport ([www.koeln-bonn-airport.de/en.html](http://www.koeln-bonn-airport.de/en.html)), or by car.

### By train from:

- Frankfurt Airport (located about 100 km from Bad Ems), with flights to many cities in Europe. From the airport take a direct train (ICE) to Montabaur or RE to Koblenz. The travel will take approximately 30min to Montabaur and 1.5 hours to Koblenz.
- From Cologne/Bonn Airport take a train to Koblenz.  
The train schedule and tickets could be found at [www.bahn.de](http://www.bahn.de)

The taxi-transfer from Koblenz and Montabaur will be organised.

By car: take the exit 40-Montabauer from the A3 Highway.

Detailed information on how to reach the conference venue will be circulated closer to the arrival date.

### 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.

Level of Participation	Conference Fee	
	before August 01, 2016	after August 01, 2016
Regular Participant	370 Euro	450 Euro
Student Participant	270 Euro	350 Euro
Tour cost	30 Euro	30 Euro
Banquet Ticket	50 Euro	50 Euro

The fee includes the book of abstracts, coffee breaks, lunches and the conference reception. The payment to the order of "DySoN 2016" 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: DEUTDEDBFRA

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

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

## **Accommodation**

Please book accommodation directly with the [Häcker's Grand Hotel, Bad Ems, Germany](#) and quote the DySoN conference, see also the [link on the Conference site](#). The rooms are being held until 2 months before the conference and will then be released so please book early.

## **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. Bréchnac (Laboratoire Aime Cotton, CNRS, Orsay, France)
- ◆ M. Broyer (University of Lyon, Lyon, France)
- ◆ J.-P. Connerade (Imperial College London, London, UK)
- ◆ F. Gianturco (The University of Innsbruck, Innsbruck, Austria)
- ◆ J. Jellinek (Argonne National Laboratory, Argonne, Illinois, USA)
- ◆ S. Khanna (Virginia Commonwealth University, Richmond, USA)
- ◆ N. Mason (The Open University, Milton Keynes, UK)
- ◆ E. Surdutovich (Oakland University, Rochester, MI, USA)

## **Organizing Committee**

- ◆ A.V. Solov'yov (MBN Research Center, Frankfurt am Main, Germany), **Chair**
- ◆ M. Huth (Goethe University, Frankfurt am Main)
- ◆ Ch. Kexel (MBN Research Center, Frankfurt am Main, Germany)
- ◆ A.V. Korol (MBN Research Center, Frankfurt am Main, Germany)
- ◆ S. Schramm (Goethe University, Frankfurt am Main)
- ◆ I.M. Solovyeva (MBN Research Center, Frankfurt am Main, Germany)

## **Contact Information**

### **Prof. Dr. Andrey V. Solov'yov**

Chairman of the DySoN 2016 Conference  
Scientific and Executive Director  
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## **DySoN Conference Web Page**

Updated information on the conference is available at the following internet address:  
[www.mbnresearch.com/dyson-2016](http://www.mbnresearch.com/dyson-2016)

## **Conference e-mail**

team@mbnexplorer.com