hausdorff center for mathematics

universitätbonn

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HAUSDORFF SPECIALS

Bonn is the best German university for Mathematics

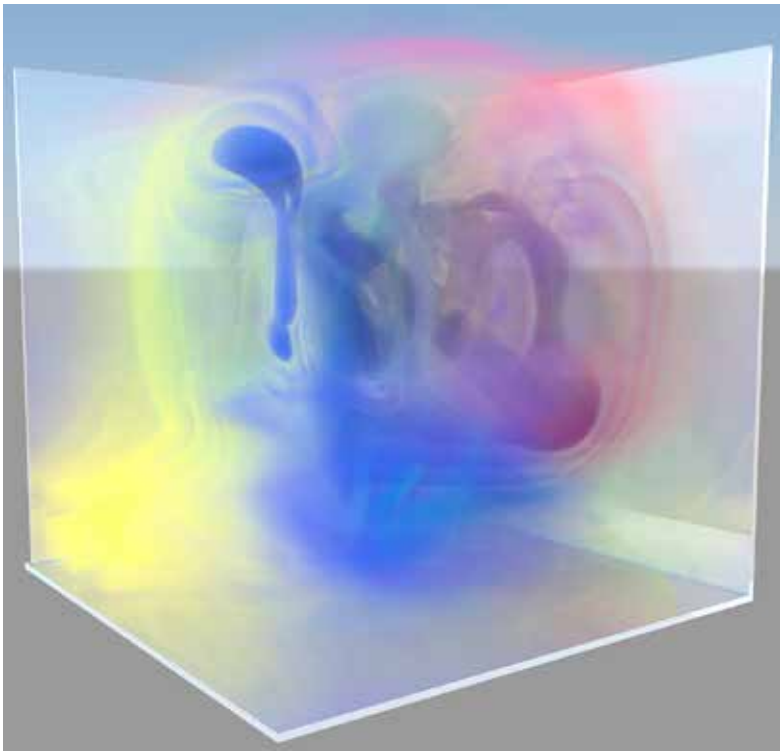
News-Blog of the University of Bonn from August 28, 2015

Bonn Mathematics with its cluster of excellence – the Hausdorff Center for Mathematics- occupies the first place among German universities in the Shanghai Ranking 2015. Thereby, Bonn has been chosen as the best German university for mathematics seven years in a row. In the worldwide ranking, the mathematical institutes of the University of Bonn range on position 29. The Shanghai Ranking is conducted since 2003 by the Jiaotong University and rates about thousand universities worldwide every year. Criteria are the quality of the education and the staff, research achievements, and the size of the evaluated programs.

Foreseeing the future more exactly

Press release from September 11, 2015

University of Bonn: Researchers discuss how to use big amounts of data for better models



WHow does the air flow influence the performance of a jet engine? How can we calculate the value of financial products – especially of the so called derivate? How can mathematical methods describe the dispersal of pollution in soil? Leading international experts will debate which mathematical methods might enhance future predictions for these and other questions from Monday, September 14 to Friday, September 18 at the Institute for Numerical Simulation of the Hausdorff Centers for Mathematics. Journalists are welcome!

The scientists discuss which methods might result in a more efficient application of simulations. Physical processes depend on many different influential factors like for example geometry, external forces or material properties. Numerical simulations emulate such processes in a computer model to analyze them and generate information that might help to make predictions for similar phenomena in the future.

The reliability of these predictions depends strongly on the quality of the mathematical model and the data that they are based on. As it is not possible to include all potentially influential factors it is one of the biggest challenges to identify those parameters which are essential for the outcome of the physical process. Researchers discuss how this may work at the “Workshop on High-Dimensional Approximation” at the University of Bonn.

HAUSDORFF SPECIALS

The internet, mobile communication, and the digital collection of data provide researchers with huge amounts of information which might help to enhance the quality of their studies – if they had mathematical models for an appropriate analysis at hand. Most conventional models are not designed to meet the new challenges of “Big Data”.

Mathematicians of the Hausdorff Center at the University of Bonn collaborate therefore with colleagues from all over the world to develop techniques which allow for an automated identification of the most important factors out of bunch of data. Their method is called “high-dimensional approximation”. It works by approaching high-dimensional phenomena with simplified models. In the future, this could help to evaluate for example the exactness of temperature predictions and therefore enhance weather forecasts.

The scientists from Bonn organize the sixth meeting on this topic already in cooperation with colleagues from Australia. The workshop brings researchers from different mathematical fields together for a joint discussion about theories, calculations, and applications. “The conjunction of big amounts of data, high-dimensional approximation, and numerical simulation provides us with an opportunity to tackle so far unsolved problems. I’m looking forward to interesting results from this workshop,” says Prof. Jochen Garcke, one of the meeting’s organizers.

HAUSDORFF PEOPLE

Massimiliano Gubinelli accepted the appointment to a professorship by the University of Bonn and is now a new Hausdorff Chair since September 1. Before, he taught at the Université Paris-Dauphne. His research areas are stochastic analysis and statistical mechanics.

Yichao Tian ist a new Bonn Junior Fellow. He investigates arithmetic algebraic geometry and is especially interested in the geometry of the Shimura variety, p-divisible groups, p-adic modular forms, and Galois representations. Moringside Center of Mathematics.

Seyedehsomayeh Hosseini from the ETH Zürich is a new Hausdorff Postdoc at the working group of André Uschmajew. She is going to work on techniques and analysis to provide new methods to solve non-smooth optimization problems posed on Riemannian manifolds.

The Bonn Mathematical Logic Group of Peter Koepke is now supported by the new Hausdorff Postdoc **Aleksandra Kwiatkowska**, who came to Bonn from the University of Illinois and joined the team in August. She investigates Descriptive Set Theory and its connections with Ramsey Theory and Topological Dynamics.

Michael Brown now investigates commutative algebra and K-theory as a postdoc in the working group of Tobias Dyckerhoff. Previously, he worked at the Texas A&M University.

Tina Kanstrup (before: Aarhus University) and **Daniel Tubbenhauer** (before: Université Catholique de Louvain) are working as postdocs with Catharina Stroppel since September. Daniel Tubbenhauer’s main research interest is categorification and its applications in representation theory, low dimensional topology and algebraic geometry. Tina Kanstrup works on geometric representation theory. She is especially interested in categorical actions of algebraic objects on categories of an algebro-geometric nature.

Martin Ulirsch is a new postdoc of Daniel Huybrechts. He works on arithmetic and algebraic geometry and is especially interested in the intersection of tropical, non-Archimedean, and logarithmic geometry. Prior to that he was a PhD student at the Brown University.

Martin Lohmann works now as a postdoc at the Sonderforschungsbereich 1060 with Margherita Disertori on supersymmetric sigma models for disordered media and random walks. Before, he worked at the ETH Zürich.

Silke Steinert-Berndt took the office of Heike Römer at the HIM in August and is therefore now responsible for the Guest & Family Service as well as for conferences.

HAUSDORFF EVENTS

BIGS poster exhibition

July 2-3, 2015

More than 90 PhD students participated this year in the annual poster exhibition of the Bonn International Graduate School of Mathematics. The contribution by Philipp Morgenstern was elected as the best poster.

School Week 2015

August 19-22, 2015

Rainer Kaenders, Margherita Disertori, André Uschmajew, Matthias Kreck, Michael Meier and Thoralf Räsch got nearly 70 school kids into mathematics at this year's School Week. The participants learned something about prime numbers and accident from a mathematical perspective. They experienced university life in lectures and classes, were informed about the program of study, and visited the Arithmeum.

Advanced training for teachers

September 3-4, 2015

Rainer Kaenders and Marc Sauerwein organized an advanced training for mathematics teachers about symmetry. The training also included a workshop by Markus Stroppel from the University of Stuttgart. Twelve teachers enjoyed the inspirational atmosphere and fruitful discussions at the training.

Bonn Mathematics Tournament 2015

September 25, 2015

The Bonn Mathematics Tournament took place on September 25 with 54 schools from Bonn and the wider area at the Mensa Nassestrasse. The tournament was brought to Bonn by Rainer Kaenders in 2008. This year, the teacher's team and the Hausdorff Center team with Sergio Conti, Martin Huesmann, Peter Holy and Barbara Zwicknagl obtained more points than the school children – but the kids still had a lot of fun in this mathematical challenge. The team from the Beethoven-Gymnasium Bonn scored first amongst the schools. Hans Walser held an advanced training for teachers at the Arithmeum with nearly 70 participants.The lively event was presented by Thoralf Räsch and the mathematical YouTube star DorFuchs sang several of his songs.

HAUSDORFF CALENDER

Combinatorial Optimization
(Hausdorff Trimester Program)
September 1 to December 18

Rigidity Workshop (HIM Trimester Program)
October 5 to 9

Young Women in Algebraic Geometry
October 5 to 7

„Transcending Tradition“ – Exhibition about Jewish Mathematicians at the Poppelsdorfer Schloss:
(every day except Monday from 10 to 18h, admission is free)
October 6 to 24

Exhibition opening „Transcending Tradition“
October 8

Hirzebruch Lecture with Arthur Jaffe
October 13

Deadline for the application for the Postdoc Mentoring Program for the summer term 2016 (Hausdorff School)
October 15, 2015

Panorama of Mathematics
October 21 to 23

Registration for the conference is open until October 11

www.hausdorff-center.de/panorama

Inauguration of the Hausdorff School
October 20

Mathematischer Salon
November 5

Plücker Lecture 2015
November 5 to 6

Relaxation Workshop (HIM Trimester Program)
November 16 to 20

Game Theory Workshop (Hausdorff Trimester Program)
December 14 to 17

HAUSDORFF MIXED

Research with children

The nanny got sick, there’s a strike at the day-care center or your child just has a very clinging day..? The Hausdorff Center offers its employees two special Parents-Kids-Rooms for such short-term emergencies. The office is equipped with lots of toys for the small ones and a desk for the grownups. The side room contains two beds for the child and an exhausted parent. The Parents-Kids-Office is located in the Annex (room no. N1.012 and N1.013) at the Endenicher Allee 64. All employees of the Hausdorff Center and the mathematical institutes can receive the key by sending an email to elternkind@iam.uni-bonn.de.

New logo

The Bonn International Graduate School of Mathematics now has a new, modern logo. The design corresponds to that of the Hausdorff Center and the Hausdorff Research Institute for Mathematics to demonstrate the association of our three institutions also visually.

BIGS
BONN INTERNATIONAL GRADUATE SCHOOL OF MATHEMATICS

IMPRESSUM

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