

HAUSDORFF SPECIALS

Shaw Prize awarded to Gerd Faltings

Press release from June 1, 2015



Prof. Dr. Gerd Faltings receives the Shaw Prize for Mathematics together with his colleague Henryk Iwaniec from the Rutgers University. The prize is endowed with one million dollars. The prize is awarded in recognition for their work on number theory and the so called "Galois Groups". Faltings laid the foundation for this research by proving an assumption on polynomial

equation, which had kept mathematicians busy for sixty years. The award ceremony will take place in Hongkong

Peter Scholze receives the Ostrowski Prize 2015

Press release from June 11, 2015



One of the highest honors a mathematician can receive goes to Germany for the first time. The mathematician Peter Scholze from Bonn is awarded the Ostrowski Prize 2015, which is endowed with €95.000. The prize is awarded biannually for recent outstanding achievements in pure mathematics and in the theoretical foundations of numerical mathematics since 1989.

Peter Scholze is a professor at the Hausdorff Center for Mathematics, a cluster of excellence at the University of Bonn. He receives the prize for his innovative research at the interface of automorphic forms and arithmetic algebraic geometry, such as his work on the Langland conjectures.

Robert P. Langlands postulated in 1967 a possible connection between several research fields. He assumed that this

on September 24th 2015. The Shaw Prize was established in 2004 by the Chinese movie producer and multimillionaire Run Run Shaw. It honors individuals who have achieved a significant breakthrough in research and "whose work has resulted in a positive and profound impact on mankind" in three different categories. Gerd Faltings is managing director of the Max Planck Institute for Mathematics and one of the directors of the Hausdorff Center for Mathematics, a cluster of excellence for mathematics and mathematical economics at the University of Bonn. He was born July 28th 1954 and studied at the University of Münster, before he worked at the universities of Harvard, Wuppertal and Princeton. In 1995 Faltings came to Bonn. Already in 1986 he was awarded the Fields Medal and still is the only German medalist today. The Fields Medal has often been described as the "Nobel Prize for mathematicians".

link could help to "translate" several unsolved problems from one field to another in order to solve them there. As a result a set of theories about these possible connections were developed, which are now known as the "Langland's Program". Mathematicians all over the world are working on proving these assumptions. Scholze proved the local Langland conjectures for p-adic bodies with geometric methods.

In 2012 he published his theory of "perfectoid spaces". Following the introduction of this new theory he was able to generalize an important theorem by his colleague Gerd Faltings, who recently received the Shaw Prize. Also, Scholze developed new geometric interpretations for spaces that have been first described by his doctoral supervisor Michael Rapoport. Scholze's work was the first progress in this field after thirty years. "I'm very happy that the prize goes to Germany and especially to Bonn. The stimulating atmosphere here in Bonn has a major impact on my research," says Peter Scholze.

The Ostrowski Prize is named after the mathematician Alexander Markowitsch Ostrowski and is one of the most important international awards for higher mathematics. The prize is expected to be awarded in Kopenhagen this autumn.

HAUSDORFF SPECIALS

ERC Advanced Grant awarded to Wolfgang Lück

Press release from June 15, 2015

Dr. Wolfgang Lück, professor at the Mathematical Institute and director of the Hausdorff Research Institute for Mathematics from the cluster of excellence for mathematics, receives an Advanced Grant from the European Research Council (ERC). The grant includes a funding of about 1.7 million EUR over five years. The grant is a distinction as the competition for it is very hard: the ERC received about 2300 applications for it this year.

Prof. Lück's expertise is pure mathematics and the scientist works mainly in the field of topology. The research project funded by the ERC granted will focus on manifolds and their symmetries in the first place. "Manifolds are geometric objects that appear to be identical locally but are different in a global view", explains Prof. Lück. The surfaces of a sphere and donut are manifolds, for example. Locally they both look like one plane, but they are clearly different from a wider perspective. The project will analyze and develop different methods and techniques for the investigation of manifolds and the question of their classification. Those techniques originate in manifold theory but also in other mathematical areas. "Our main goal is to transfer results, methods and techniques between different mathematical fields", states the researcher. It is about knowledge production, proofs of new theorems and initiation of innovative fields and cross connections. This approach carries some risk, but also has a high potential to generate significant breakthroughs.



The ERC Grants were meant for projects like this, which aim at new horizons. "Bonn is an internationally renowned center for mathematics and therefore an ideal place for such a widespread project", says Professor Lück.

The ERC Grant is also an excellent platform for qualified young researchers due to the great networking of several mathematical disciplines.

Wolfgang Lück, born in Herford on February 19th 1957, studied and habilitated mathematics in Göttingen. He won the German National Mathematics Competition at the age of 15. He is a fellow at the Max-Planck-Institute in Bonn. The former president of the German Mathematics Association and Leibniz laureate came to the University of Bonn in 2010as director of the Hausdorff Research Institute for Mathematics. Previously, he had worked in Mainz and in the USA, too.

HAUSDORFF PEOPLE



Kirsten Stahn is a new student assistant of Sven Rady (Microeconomics).



Jakob Jentgens will support the working group of André Uschmajew (Numerical Simulation) as a student assistant. Christian Kuske joined the same group as a graduate assistant.



Melanie Hirzmann is a new member of our team for school activities and is already organizing the upcoming mathematics week for school children.

Anuschka Clasen is a new student assistant for public relations and also supports the organization of the Panorama conference.



Joseph Neeman came to the HCM as new Bonn Junior Fellow from the UT Austin. He works in Applied Mathematics.



Ngoc Tran also joined us from the Texas as a new Bonn Junior Fellow in Applied Mathematics. Previously, she worked i.a. in Berkeley.

HAUSDORFF EVENTS



"The Imitation Game" January 25/March 1, 2015

Peter Koepke introduced the audience of the popular movie "The Imitation Game" about the life of Alan Turing to the mathematics behind the Hollywood screenplay twice. He explained why it was possible to break the Enigma code in front of a completely sold out cinema at the REX movie theater. In January he was also supported by Mario Wolfram and Ingo Laubach (Arithmeum) with a presentation of an original Enigma machine.



Job application training May 18, 2015

As a part of our new Hausdorff School program we organized a job application training for postdocs. Karl-Theodor Sturm and Catharina Stroppel explained to the young researchers what's important in the academic application process and which mistakes they should rather avoid. The Chief Operating Officer of the Zürich Group Deutschland, Ulrich Mitzlaff, and his team introduced career paths outside of the academic field and explained how he became a manager after obtaining his PhD in mathematics.



The girl with the calculators June 3, 2015

Günter M. Ziegler (FU Berlin) gave a public talk at the Bundeskunsthalle on invitation of the Hausdorff Center and with financial support from the Deutsche Telekom Stiftung. He explained the mathematics behind some famous pieces of art and presented his new book. After the talk, the almost 300 visitors experienced mathematics practically at the stands of our school activities team.

Open day at the Villa Hammerschmidt *June 14, 2015*

The Hausdorff Center was invited to present itself for the first time at the open day of the Villa Hammerschmidt this year. The presentation of our school activities team took place on a bright and sunny day and got many visitors into mathematics.





HAUSDORFF CALENDER

Homotopy theory, manifolds, and field theories (Hausdorff Trimester Program): until August 21

Poster exhibition of the BIGS: July 2-3

Families of automorphic forms and the trace formula part 2 (Research in Groups): July 5-18

Dörte Haftendorn (Lüneburg): Kurven erkunden und verstehen (Toeplitz Kolloquium): July 6

Hausdorff-Kolloquium with Jan Hendrik Bruinier (*TU Darmstadt*) and Angela Stevens (*Universität Münster*): July 8

Nonlinear evolutions: Kinetic equations and defect dynamics (Hausdorff School): July 13-17

Conference on Topology and Geometry: August 17-21 SchülerInnenwoche 2015: August 19-22

Combinatorial Optimization (Hausdorff Trimester Program): September 1-December 18

Lehrerfortbildung 2015 "Symmetrie" September 3-4

Connectivity Workshop (HIM Trimester Program): September 7-11

8th International Workshop: Meshfree Methods for Partial Differential Equations: September 7-9

6th Workshop on High-Dimensional Approximation: September 14-18

Summer School on Combinatorial Optimization (HIM Trimester Program): September 21-25

Bonner Mathematikturnier 2015: September 25

HAUSDORFF MIXED



Cooperation agreement with the Beethoven-Gymnasium

This may, the Hausdorff Center has signed a cooperation agreement with the Beethoven-Gymnasium Bonn. Aim of this agreement is to support mathematics beyond the regular syllabus at schools. Therefore, the school activities team of the Hausdorff Center will provide special lessons and talks, offer traineeships for extraordinary school children, and assist them when they wish to start early studies in mathematics.

Hausdorff 2.0

The Hausdorff Center is now running accounts on several social media platforms. We provide our followers on Facebook, Twitter and Instagram with regular updates and pictures. The HCM also merged its YouTube channel with the channel of the HIM so that anyone who's interested can now easily find all of our videos together at one spot.





New column on our website: "Research paper of the month"

From now on we'll explain the results of one of our recent papers for a general audience on our website each month. We start with a text about the work of Tobias Berg from our mathematical economics group. He analyzed the mechanisms behind credit fees. Have a look!

IMPRESSUM

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