Press information

EMBARGO: Thursday, October 5, 16:00

KlarText – Prize for Science Communication awarded to seven scientists

The German foundation Klaus Tschira Stiftung reconfigures their prize for comprehensible science

Heidelberg, October 5, 2017. The winners of KlarText, the Klaus Tschira Foundation's prize for science communication, deal with artificial cartilage, with rock movement in the earth's interior, or with sperm quality. The seven young scientists earned their doctoral theses in completely different themes and wrote a paper in German about them – one text that should even make non-scientists interested about what is happening in scientific research. Today, Thursday, October 5, at 16:00, they will be distinguished with the KlarText Prize in the Alte Aula of Heidelberg University.

The Klaus Tschira Foundation will be granting the prize for the 15 time. In 2017, 185 scientists submitted a text in various categories: biology, chemistry, computer science, mathematic, neuroscience or physics. A jury of of journalists and scientists selected the best submissions through a three-stage process. This year's recipients completed their doctorates in Heidelberg, Bonn, Zuric, Jena, Lund and Potsdam, and their résumés and subsequent theses are summarized below.

Unique to this year, there are two prizes granted in biology. Also, in the the coming years, researchers in the geosciences can submit their texts, which will be included in the categories.

However, this is not the only development: "We have continued to develop the award further since the beginnging in the 90's, always with the goal to motivate as many researchers as possible to explain their scientific results and to proudly display their passion for it," explained Beate Spiegel, Managing Director of the Klaus Tschira Foundation. That's how the management and their team decided to rename the prize. The "Klaus Tschira Prize for Comprehensible Science – KlarText!" became "KlarText – Prize for Science Communication." "KlarText will remain as the core of the name so that the focus is on the initials of our father, Klaus Tschira, who really enjoyed word play," said Managing Director, Udo Tschira. The new name is catchier and clearer, also through the usage of science communication.

In addtion to the name of the prize, the foundation also further developed the design of the prize. In the logo on the new website and in the applictation portal, which the applicants can use to submit their texts beginning in November for the 2018 application. And: Already this year, the winners' texts will be published in a science magazine that will accompany the ZEIT on October 5.

These developments should motivate even more scientists to clearly explain their research results, to make them transparent and indeed, to engage as many non-scientists as possible.

As in years past, the winners can look forward to 5,000 Euro in prize money. All applicants, not only the winners, are invited by the foundation to a two-day science communication workshop in Heidelberg.

The application phase for KlarText 2018 begins this mid-November, and the deadline for text submissions is February 28, 2018.

To the editors:
With this press release, we would like to extend an invitation to attend and report on the event. More information can be found at www.klartext-preis.de

Photos of the prize recipients are available on October 5, beginning at 19:30 at : https://www.klartext-preis.de/meldungen/klartext-preis-2017
The winning submissions can be found beginning at 16:00 at www.klartext-preis.de

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The Winners of the KlarText Prize 2017 – Portraits and brief summaries:

Biology: Dominik Niopek, winning entry „Zellen steuern mit Licht – und Liebe“ (“Control Cells with Light – and Love“)

Dominik Niopek was born in Speyer in 1987. He studied molecular biotechnology at Heidelberg University where he completed his dissertation entitled “Optogenetic Control of Nucleocytoplasmic Protein Transport.“ Currently, he is leading a research “Synthetic Biology” at Heidelberg University.

In his text, Dominik Niopek describes a new technique that enables gene-switching to be controlled with light. He created a light-sensitive protein from yeast plants, with the help of genetic methods, that functions like a molecular transporter: when the cell is irritated with a blue light, it causes the transporter to activate the attached protein into the core of the cell, or when removed, out of the core. This technology enables the dynamic movement of a protein to be examined in a new way. In addition, the time and place of the protein can be precisely controlled and this technique gives scientists a new instrument to decode cellular and illness related processes.

Biology: Christian Schiffer, winning entry „Auf der falschen Fährte“ (“On the Wrong Track“)

Christian Schiffer was born in Grevenbroich in 1987. He studied biochemistry in Düsseldorf and transferred to Bonn for his master at the Caesar Research Center of the Max-Planck-Society. He earned his doctorate in chemistry at the University of Cologne for the thesis, “Effect of Environmental Chemicals and Progesterone on Human Sperm.” Since 2016, Schiffe has worked at the Centre for Reproductive Medicine and Andrology of the Münster University Hospital (UKM).

The fertilization of the egg is a difficult endeavor for sperm, achieved by a sequence of cellular signal processes. Sexual hormones released by the egg serve as a guide to navigate the fallopian tube. In his text, Christian Schiffer demonstrates how specific chemicals that we use to cope with our environment, sun screen for example, can disrupt this process. They imitate the effect of this sexual hormone on the sperm and thus upset the sperm’s operation. This can, in turn, negatively impact the fertilization process.

Chemistry: Christian Mathis, winning entry „Der Knorpel im Hydraulikzylinder“ (“The Cartilage in a Hydraulic Cylinder“)

Christian Mathis was born in Bregenz, Austria, in 1986. He studied aerospace in Delft and economic sciences in Rotterdam. After a stopover in industry, he completed his doctorate at ETH Zurich with the thesis, “Investigation of Fluid-Confinement in Lubricating Polymer-Brush Coatings.” Currently, he is working at SuSos AG in Dübendorf, Switzerland, on the development of an innovative coating technology for medical engineering.

In his text, Christian Mathis gives a brief outline of how cartilage in our joints functions and how artificial imitations can be ingeniously used in mechanics. He concentrated his efforts on better

understanding lubrication mechanisms and developed new techniques. Subsequently, Mathis tested hydraulic cylinders and how to, by means of his new knowledge, reduce friction and downforce.

Computer Science: Alexander Freytag, winning entry „Wie Maschinen das Lernen lernen“ (“How Machines Learning Learn”)

Alexander Freytag grew up in Erfurt, where he was born in 1988. He studied computer science in Jena and gradated with the thesis, “Lifelong Learning for Visual Recognition Problems.” Since 2016, he has done research on the next generation of intelligent optical sysstems at the Carl Zeiss AG in Jena.

In order to learn something new, children have an internal need to pose questions. In his text, Alexander Freytag deals with the issue of whether machines can be programmed to ask questions in order to learn. And, if so, which core skills does the intelligent machine have to have. Freytag equipped a computer with “abilities” that resemble the human capacity to learn. He programmed the machine to ask questions and recognize patterns in order to process impressions. Furthermore, he sketches possible applications of lifelong living machines in his text.

Mathematics: Marcel Mohr, winning entry „Berechenbarer Krebs“ (“Calculable Cancer“)

Marcel Mohr comes from Gießen, where he was born in 1986. The mathematician studied in Gießen and at TU Munich. He wrote his doctoral thesis at Heidelberg University: “Mathematical modelling of plasma cell dynamics in multiple myeloma.” Since 2016, he has worked there and at the Heidelberg University Hospital on the application of mathematical models in medicine and the biosciences.

It is rarely foreseeable how a cancerous disease proceeds. Many different factors play a role. In his text, Marcel Mohr explains how mathematics can contribute to better understanding the dynamics of the disease. He shows that how fast cancerous cells grow can be calculated by means of mathematical models. This enables physicians and their patients to conclude how fast the cancer spreads and when symptoms are probably expected.

Neuroscience: Anna Stöckl, winning entry „Mit guter Sicht durch die Nacht“ (“With a Clear View right through the Night“)

Anna Stöckl was born in Rüdesheim in 1987. She studied biology in Heidelberg and did her master in neuroscience at LMU Munich. She earned her doctorate in 2016 from Lund University in Sweden for her thesis, “Neurons against noise: neural adaptations for dim light vision in hawkmoths.” Currently, she does research on the visual signal processing in the retinas from mice.

In her text, Anna Stöckl describes how the vision of middle vine hawk moths functions. The moths can see incredibly well with only starlight because their light sensitivity can be additionally enhanced through the processing of light signals in the brain. This mechanism could also be used by humans

through the development of night vision algorithms for cameras that, for example, could be installed in autonomous cars.

Physics: Juliane Dannberg, winning entry „Auf und Ab im Erdmantel“ (“Up and down in the earth’s mantle”)

Julianne Dannberg comes from Jena, where she was born in 1988. The geophysicist studied in her hometown and graduated from the German Research Centre for Geosciences in Potsdam with the thesis: “Dynamics of mantle plumes: Linking scales and physics.” After her doctorate, she went to the USA. Dannberg currently works on the modelling of processes in the earth’s mantle as a postdoctoral fellow at Colorado State Univesity in Fort Collins.

In her text, Juliane Dannberg deals with rock movements in the earth’ interior: There, cold rock sinks, hot rock rises, like in a lava lamp, only much slower. When hot rock approaches the earth’s surface, it begins to melt and the resulting magma triggers volcanic eruptions. Juliane Dannberg developed a new computer model that takes the chemical composition of the rock and the movement of solid rock, such as melted magma, into account. She came to the conclusion that, through the rise of hot rock, enough magma and gas can result in triggering a violent volcanic eruption and mass extinction, as in the case of the dinosaurs.