Deutsche Physikalische Gesellschaft e. V.

PRESS OFFICE
Hauptstraße 5
53604 Bad Honnef
GERMANY
phone. +49 (0)2224 9232 – 33
fax +49 (0)2224 9232 – 50
email: presse@dpg-physik.de

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of the City of Frankfurt am Main
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A Passion for Precision

The Otto Hahn Prize 2021 goes to nuclear physicist Klaus Blaum of the Max Planck Institute for Nuclear Physics in Heidelberg. The award is endowed with 50,000 euros and is jointly sponsored by the City of Frankfurt am Main, the German Chemical Society (GDCh) and the German Physical Society (DPG). The award ceremony will take place on November 5 in the festive setting of Frankfurt's Paulskirche.

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Frankfurt am Main / Bad Honnef, September 30, 2021 - "A passion for precision" concisely characterizes the research of physicist Klaus Blaum, who will be awarded the Otto Hahn Prize 2021 this year. His work is pioneering for broad areas of atomic, nuclear and particle physics, especially for the test of the fundamental forces of nature in the microcosm.

"The questions that Klaus Blaum addresses are only at first glance far away from the reality of our lives," said Mayor Peter Feldmann, describing the award winner's work. "He is, as a layman might say, the cartographer of the microcosm. With meticulousness and precision, he surveys what forces are at work there. Through him we understand the mechanisms of action of our environment. He proves that working on a small scale is not `small-small´ - but, on the contrary, virtually challenges our understanding of the world."

"With his research, Blaum is expanding our knowledge of the fundamental properties of the constituents of the matter that surrounds us," adds Lutz Schröter, president of the German Physical Society (DPG). Blaum's research activities are wide-ranging and can best be summarized as "the study of exotic particles and states." These include studies of highly charged ions, short-lived atomic nuclei, antimatter, and the heaviest artificial elements.

"With Klaus Blaum, an exceptional scientist is receiving the Otto Hahn Prize," says Peter R. Schreiner, president of the German Chemical Society (GDCh). "The findings of his work also create important foundations for chemical research."

Today, the properties of elementary particles and the forces acting between them are often studied at the highest energies. However, a number of fundamental questions in particle physics and cosmology can be pursued particularly well at low energies.

Since the effects here are usually extraordinarily tiny, the highest precision is required. To this end, Blaum and his group developed a large number of sophisticated techniques, often performing the experiments on single particles at the lowest temperatures. By applying a series of brilliant ideas and exceptional experimental skills, he combined sophisticated techniques from atomic, nuclear and accelerator physics.

Blaum published his scientific results in more than 450 scientific articles in the leading and most internationally recognized physics journals. Although considered young in scientific circles at 49, he is already one of the world's most productive and cited researchers in the field of precision physics and measurement.

Klaus Blaum was born in Bad Sobernheim, Rheinland-Pfalz, Germany, on December 27, 1971. He studied physics at the Johannes Gutenberg University in Mainz, where he received his doctorate in 2000 under Ernst-Wilhelm Otten (1934 - 2019) after receiving his diploma in 1997 and several research stays at the Pacific Northwest National Laboratory (PNNL) in Richland, USA. Subsequently, he was a research associate at the GSI Helmholtz Centre for Heavy Ion Research in Darmstadt until 2002 and worked at the European Nuclear Research Center CERN near Geneva. There he was project leader for "Mass spectrometry of exotic nuclei with ISOLTRAP at ISOLDE" until 2004. In October 2004, Blaum took over the position of project leader of the Helmholtz-University Young Investigators Group "Experiments with Stored and Cooled Ions" at the Johannes Gutenberg University Mainz for four years. In 2006, he habilitated there on high-precision mass spectrometry with Penning traps for charged particles and storage rings.

Blaum taught at the University of Mainz from 2004 to 2008. He was awarded the 2006 Teaching Prize of the State of Rheinland-Pfalz, Germany, for his teaching activities. In October 2007, at the age of only 35, he received an appointment as director and scientific member of the Max Planck Institute for Nuclear Physics in Heidelberg. This was followed in April 2008 by his appointment as Honorary Professor (W3) of the Ruprecht Karls University in Heidelberg. Since July 2020, Blaum has been Vice President of the Max Planck Society, responsible for the institutes of the Chemical-Physical-Technical Section.

At a young age, Blaum was awarded numerous highly prestigious prizes, including the Gustav Hertz Prize of the German Physical Society in 2004 for his outstanding work on the mass determination of unstable atomic nuclei, as well as the Helmholtz Prize of the Physikalisch-Technischen Bundesanstalt (PTB) in 2012 and the Lise Meitner Prize of the European Physical Society (EPS) in 2020.

In 2019, he was accepted as a foreign member of the physics class of the "Royal Swedish Academy of Sciences".

The Otto Hahn Prize is awarded jointly by the City of Frankfurt am Main, the German Physical Society (DPG) and the German Chemical Society (GDCh). It serves to promote science, particularly in the fields of chemistry, physics and applied engineering sciences, by recognizing outstanding scientific achievements. It is endowed with 50,000 euros and is awarded every two years with a ceremony in Frankfurt's Paulskirche.