PRESS RELEASE
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U.S. SCIENTIST TO RECEIVE HAMBURG PRIZE FOR THEORETICAL PHYSICS

Dr. Andrew Millis will receive the Hamburg Prize for Theoretical Physics 2017, including prize money of 40,000 Euros, for his groundbreaking research on the electronic properties of correlated materials. He made essential contributions to our understanding of high transition-temperature superconductivity in copper-oxide materials and proposed how superconductivity could be obtained at even higher temperatures.

Hamburg, 12. July 2017. This year’s Hamburg Prize for Theoretical Physics, jointly awarded by the Joachim Herz Stiftung and The Hamburg Centre for Ultrafast Imaging (CUI), will be given to Andrew Millis, Professor at Columbia University in New York and Associate Director for Physical Sciences at the Simons Foundation.

With the prize, the U.S. physicist is recognized for his outstanding research in condensed matter physics, a field focusing on atomic and molecular interactions in solids and liquids. His work enables calculations that predict electronic properties of materials, including electrical conductivity and the tendency to magnetism. He has made landmark discoveries in properties of superconducting materials (which can conduct electric current without losses).

While most superconductors must be cooled to extremely low temperatures to reach lossless conductivity — a time-consuming and expensive process — a few are superconducting at much higher temperatures. Millis’ research has enhanced our understanding of these special materials, and his recent work may provide a path to pushing the temperature threshold for superconductivity even higher, perhaps all the way to room temperature.

"Dr. Millis is a very creative theoretical physicist, who has made outstanding contributions to the physics of superconductors and far more. We are all very much looking forward to many stimulating discussions with him," says Prof. Klaus Sengstock, head of the jury and spokesperson of the cluster of excellence CUI at Universität Hamburg.

Millis studied physics at Harvard University and received a doctoral degree from the Massachusetts Institute of Technology in 1986. He then worked as a scientist at Bell Laboratories in New Jersey. In 1996 Millis was appointed professor at the Johns Hopkins University in Baltimore and three years later...
moved to Rutgers University in New Jersey. In 2001 he joined the physics department at Columbia University, where he served as Department Chair from 2006 – 2009. He has been Associate Director for Physical Sciences at the Simons Foundation since 2011, a large U.S. foundation whose mission is to advance mathematics and basic research. Starting Sept 1, 2017 he will also be co-Director of the Center for Computational Quantum Physics at the Simons Foundation’s new Flatiron Institute.

SUPERCONDUCTIVITY AT ROOM TEMPERATURE
The creation of a room temperature superconductor could save enormous amounts of power, resulting in fewer power plants, fewer and less greenhouse gases and lower costs overall. Indeed, superconducting wires may be the only way to provide the power needed by the increasingly dense cities of the 21st century. Millis’ newest findings hint at a new path in this direction by showing how intense, ultra-short, laser pulses can potentially push higher the temperature at which materials become superconducting — possibly even as high as room temperature.

RESEARCH AND TEACHING IN HAMBURG
As a prize recipient, Millis will come to Germany for stimulating research and to teach in Hamburg.

“Andrew Millis is a progressive thinker and pioneer who has been paving the ground for solving the 21st century’s problems in resource and energy efficiency. I am convinced that senior as well as young scientists will equally profit from his expertise,” Andrea Pauline Martin, Vice Chairwoman of the Executive Board of the Joachim Herz Stiftung, emphasizes.

“I am delighted to have the opportunity to spend time at the Universität Hamburg, the Deutsches-Elektronen-Synchrotron (DESY) and the Max Planck Institute, and to work with the outstanding scientists whose presence makes Hamburg one of the best locations for my kind of research,” Millis said.

The Hamburg Prize for Theoretical Physics was established in 2010 by the cluster of excellence, “Frontiers in Quantum Photon Science”, which was supported by the Joachim Herz Stiftung. Since 2013 the prize is awarded jointly by the foundation and CUI.

The award ceremony will take place on 9 November 2017 during the annual CUI Colloquium at Science Campus Bahrenfeld in Hamburg.

For a press photo of Andrew Millis please view www.joachim-herz-stiftung.de/pressefotos.