



German Southwest-metal prize laureate Dr. Simon Kurasch (Ulm University, middle), Goetz Maier (Director of Southwest-metal Ulm, left), Thomas Handtmann (Chairman of Southwest-metal Ulm, right).

SALVE scientist receives Southwest-metal Price

Discovery of the world's thinnest glass honored by the association of metal and electrical industry

April 15th, 2014 - One of this year's winners of the German Southwest-metal prize is Dr. Simon Kurasch from the University of Ulm. With the annual award nine graduates of state universities were decorated.

The prize is worth 5,000 Euros and is awarded for the 23rd time this year. Simon Kurasch's PhD thesis under the supervision of SALVE project leader Professor Ute Kaiser bears the name „Studies on defect formation and defect dynamics in 2D materials by means of atomic -resolution transmission electron microscopy“. Thomas Handtmann, chairman of the regional group of German Southwest-metal in Ulm and CEO of Albert Handtmann Holding GmbH & Co. KG, emphasizes the importance of the dissertation. „Research advances our economy and our place and - if a novel two-dimensional material, namely the thinnest glass in the world, is discovered thereby - it is, of course, sensational“.

A short summary could describe the work as follows: With the help of aberration-corrected high-resolution transmission electron microscopy, individual atom positions can be visualized in two-dimensional materials. Thus, the atomic structure of this amorphous material as well as its change with time under the electron beam could be examined. The latter was achieved by video recording. „To put it very simply, it works similar to a slide projector - only with electrons instead of light,“ explains Kurasch. The special feature of 2D materials is that you can actually only see a single slide, while all traditional (3D) materials are built up from a massive number of superimposed layers and thus practically a large amount of slides are imaged simultaneously. „When observing 2D materials it is now possible to determine directly the atomic configuration even of amorphous

structures where atoms are not regularly ordered“, said Kurasch. During his work he discovered a novel two-dimensional material: this is the two-dimensional silica, the thinnest glass in the world.

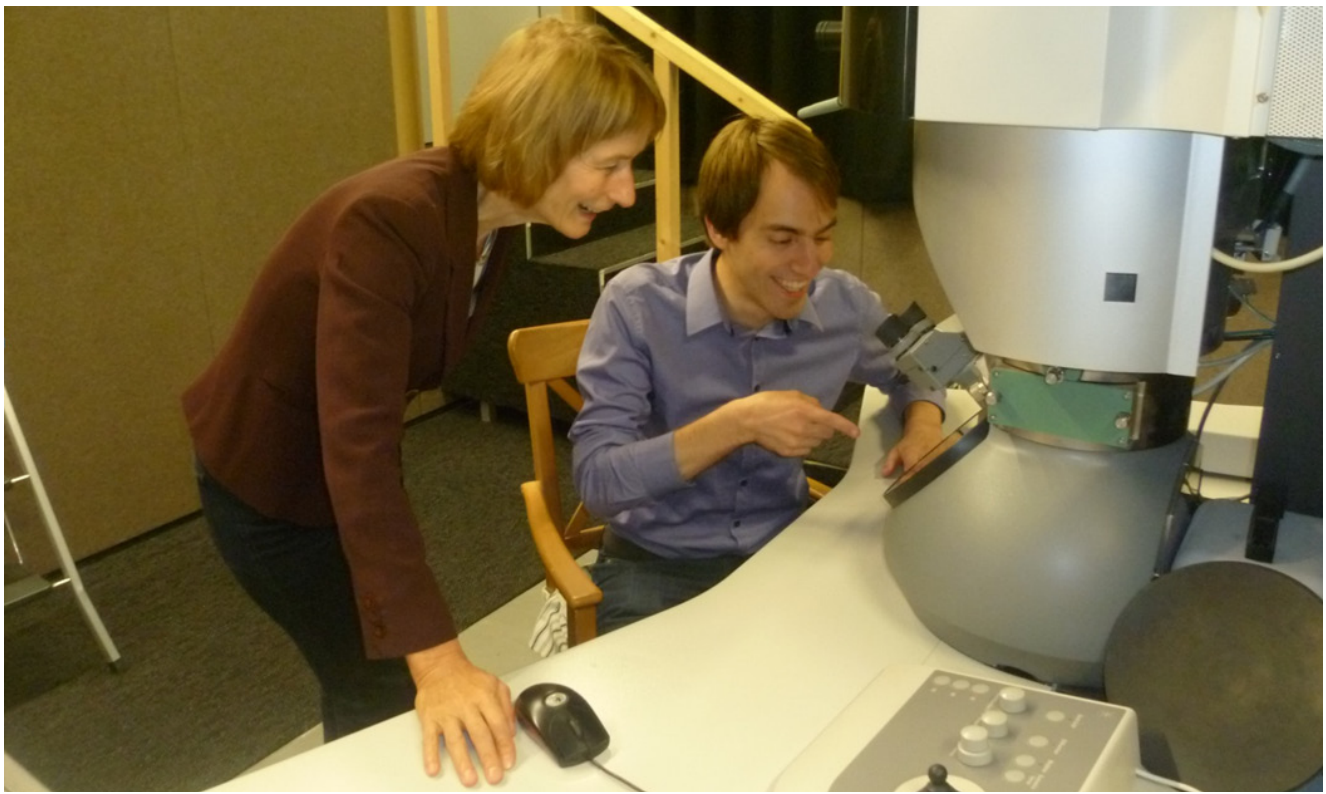
Kurasch's discovery deserved even an entry in the Guinness Book of World Records 2014.

„In his three-year PhD studies he has really done an exceptional work, his thesis is a firework of new scientific evidences“, says Professor Ute Kaiser. „With the entry in the Guinness Book of Records 2014 he has helped a great deal that our scientific research reaches many people.“

Background Info

The exact title of the dissertation of Dr. Simon Kurasch is: „Atom-by-atom observations on defect formation and dynamics in 2D materials studied by HRTEM“. HRTEM stands for high-resolution transmission electron microscopy.

Aspects of the career of the 30 year old prize winner, born in Ulm: He studied physics from 2004 to 2008 at the University of Ulm. He finished his study successfully with the diploma thesis entitled „Graphene: Imaging and Chemistry“ in 2009. The PhD thesis at the University of Ulm with „summa cum laude“ came in 2013. He is currently working as developer of computer tomography systems at Carl Zeiss Industrielle Messtechnik GmbH.



Simon Kurasch shows Professor Ute Kaiser the new glass structure imaged in the aberration corrected transmission electron microscope, FEI Titan 80-300, at Ulm University

Information about German Southwest-metal

German Southwest-metal is the association of metal and electrical industry of Baden-Württemberg, Germany. It is a competent partner for employers in labor and social law, collective agreements and social policy issues. German Southwest-metal is a mouthpiece for its member companies opposite to the trade unions, the government, and the public. Together with the social partner, German Southwest-metal arranges collective agreements and the conditions of employment. The Regional Group of German Southwest-metal in Ulm and the association of employers Southwest, which is not bound by the collective agreement, care for 119 companies with 47,224 employees in the regions Ulm, Biberach, Alb-Donau and the southeastern part of Sigmaringen.

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Translated from suedwestmetall.de.