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Graphene – exciting insights into the synthesis and chemistry of the miracle material of the 21st century and its implementation in chemistry lessons for the first time

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The two-dimensional modification of carbon which is also known as graphene is an extremely interesting material due to its physical properties, such as a very high electrical conductivity and an intrinsic mechanical strength that is even better than that of steel. For that reason, it has already been called the “miracle material” of the 21st century. Up to now, the synthesis of graphene was too dangerous to implement it into the school curricula. The authors present a method of synthesizing graphene which can be put into practice at school without hesitation. In addition, the authors present some experiments with which the varying properties of graphene oxide and graphene during synthesis can be shown. In this way, different structure-property relationships, which appear to be one of the most important concepts in chemistry lessons, can be analyzed. The authors also present a field of application for graphene.

Biography

Andreas Schedy studied from 2011 to 2016 at the University of Education Freiburg for teaching at secondary schools in the subjects of chemistry, mathematics and geography and graduated in 2016 with the first state examination. Since July 2016 he has been doing his doctorate in the working group of Prof. Dr. Marco Oetken at the University of Education Freiburg, funded by a doctoral scholarship. As part of his doctoral thesis, Mr. Schedy deals with the experimental development of the topic Graphene.

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