







## 2D Materials in Action: Energy Technologies Symposium

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Speaker	Dr. Adelina Braun
Title:	Powering a sustainable future with advanced materials for energy storage
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## Abstract:

Merck KGaA Materials Science Nanomaterials R&D has made significant progress in the development of battery materials to enhance research in the energy storage, addressing key challenges in battery performance. In recent years we have continued our focus on improving battery energy density and cycle life stability through the introduction of novel materials and processes to enhance battery performance. We collaborate closely with academic partners to explore and design various materials for traditional and emerging battery chemistries such as high energy density composites. In this talk we will cover our recent successes in developing composite electrodes, which demonstrate increased energy density and stability across a range of devices including those manufactured through 3D printing. We will also be highlighting preliminary results from our ongoing efforts on solid-state electrolytes and the development of more sustainable alternatives to commonly used battery materials, as well as the recently developed innovative ceramic inks for high temperature applications via 3D Printing.



Figure 1: Illustration of 3D-printed battery anode generated using 3D Printable Graphene Oxide Ink (product number 916579)

## **Biography:**

Dr. Adelina Braun completed her doctorate in Materials Science at Saarland University, Germany with a thesis entitled, "Nanomaterials for Optoelectronic Applications". She then gained professional experience at the European Commission's Joint Research Centre working on nanomaterials research projects. Adelina joined our Technology Management team 11 years ago and handles the Materials Science portfolio for all of EMEA. Her presentation is a discussion of the recent achievements of our Research & Development in this area.