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BATTERIES & SUPERCAPS
Cover Profile

Next-Generation Additive Manufacturing: Tailorable Graphene/Polylactic(acid) Filaments Allow the Fabrication of 3D Printable Porous Anodes for Utilisation within Lithium-ion Batteries


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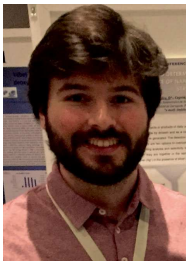
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Invited for this month's cover picture is the group of Prof. Banks. The cover picture illustrates the future of 3D-printing/additive manufacturing for battery storage systems. Read the full text of the article at 10.1002/batt.201800148.

What was the biggest challenge (on the way to the results presented in this paper)?

Current 3D printing filaments are available commercially but are limited due to their limiting loadings of active materials. These are also variable in quality, which greatly varies batch-to-batch, which limits their uptake and usefulness. To overcome this, we report 3D printing filaments that have bespoke loading for the first time. These are not only conductive but can actually be reproducibly 3D printed!

What prompted you to investigate this topic/problem?

Batteries have been made the same way for decades with batteries only manufactured in a set-range of shapes and designs. This means in the case of a portable device, designers usually design around the battery keeping to similar shapes and geometries used before. However, what if this limitation didn't exist? What if the portable device, itself, *was the battery*? To realise our vision, we decided to turn to 3D printing and produce our own bespoke filaments.

What other topics are you working on at the moment?

We have a strong knowledge in 2D and 3D printing using new nanomaterials such as these reported in our paper. We are rapidly expanding this exciting field in the areas of sensors, batteries and supercapacitors.

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