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## Ferrous electrode materials for battery-electrolyser systems

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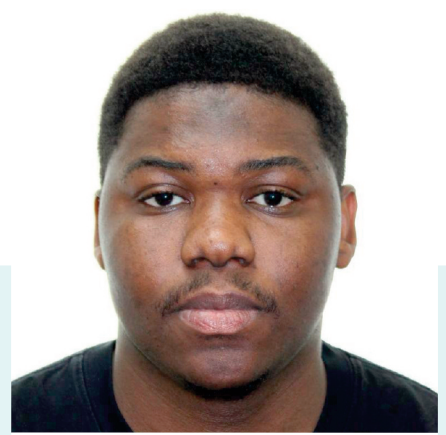
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*ABSTRACT:*

The battery-electrolyser is a technological innovation that efficiently stores energy and produces hydrogen, making it an ideal future engineering solution for storing excess renewable energy and helping decarbonisation. However, existing chemistries face material challenges, particularly corrosion of electrodes, which affects their durability.

This Knowledge Transfer Partnership (KTP) between Loughborough University and Fibre Technology Ltd focuses on developing low-cost, durable porous metal fibre network electrodes for battery-electrolyser systems using innovative rapid solidification technology and fibre bonding. The project investigates ferrous materials, specifically stainless steel (SS304, 314) and other iron alloys, to improve corrosion resistance, electrochemical performance, and durability of the battery-electrolyser electrodes using widely available materials.

The research aims to overcome barriers to commercialising this innovative technology by combining material science, chemistry, and advanced manufacturing techniques. This interdisciplinary engineering project advances the role of ferrous metallurgy in developing sustainable energy solutions, paving the way for scalable, efficient hydrogen production systems that align with global decarbonisation goals.



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