



Public Lecture: How Magnets Work

by Professor Dan Allwood, The University of Sheffield, UK

21 April 2020, 17:45–18:30, Cutler’s Hall, Church Street, Sheffield, S1 1HG

We use magnets throughout every day. They make possible much of modern life, from our electricity supply and low carbon energy, to the internet, household devices, efficient and smart cars, and industrial machines. Yet how magnets work is a mystery to most people. This interactive talk will explain the inner workings of the magnets used in modern applications, and introduce some of the latest research ideas on magnetic materials that could have a profound effect on the way we live. The talk will include demonstrations and opportunities to engage with the UK’s leading researchers in magnetic materials.



Dan Allwood

Dan Allwood is a professor in the Department of Materials Science and Engineering at The University of Sheffield. He didn’t know what university was when he first became a student but has since studied or worked at the universities of Hull,

Oxford, Imperial College London and Durham, before arriving in Sheffield in 2005. The focus of his research over the past 20 years has been magnetic nanotechnology, although he has also worked on post-graphene nanomaterials, semiconductors, laser systems and biological techniques. He introduced magnetic nanowire computing in work that inspired worldwide academic and industrial research. His current research includes

working with computer scientists on magnetic nanotechnology to develop forms of biologically-inspired computing for artificial intelligence, and working with VW on permanent magnets for electric vehicles. Dan enjoys communicating materials science outside of academia. He enjoys delivering interactive sessions to school students of all ages, leading science exhibition teams and publishing in education journals. He has also recently co-founded the education company FlashyScience Ltd, which offers online virtual experiments to support GCSE and A-level science subjects.

This lecture is an accessible introduction to magnetic materials for non-experts, including school students. To book, visit the website at events.iop.org/how-magnets-work