

# HOW IS NANOTECHNOLOGY RELEVANT TO MY BUSINESS?

Sponsored by The Sorby Nano Investigation Centre

Professor Mark Rainforth, Director of the Sorby Nano Investigation Centre, offers his advice for tackling your investigation problems.

**N**anotechnology impacts on our daily lives at every level, from the car we drive, to the environment we live in and the medicines we take. Nanotechnology gets its name from the nanometre, which is a billionth of a metre and far too small for the naked eye to see. To put this into context, a human hair is 80,000 nanometre thick or a red blood cell is 5,000 nanometre in diameter and a typical atom is 0.1 to 0.5 nanometres in diameter. Therefore, at the nanometre scale we are able to see how the components of materials, i.e. atoms, interact with each other. This effects material behaviour and therefore ultimately influences a product's performance. The nano scale is not a new concept, it has always existed, but until recently it has been beyond the reach of the commercial and

research sectors. However, in the last 20 years with the development of advanced microscopes and techniques, it is possible now to see and manipulate at the nano scale. Therefore, for the first time businesses are able to analyse and improve their products using advanced microscopy at dedicated centres such as the Sorby Nano Investigation Centre. Nano analysis and technology can provide new routes to determine how a material will behave. An example is the analysis of coatings on common glass windows that we have in our homes and work places. These coatings need to be able to keep the building cool in summer but warm in the winter. Analysis at the nano scale has allowed product developers to see if these coatings are flexible enough to distinguish between the

warm and cold seasons, but also strong enough not to crack with different temperature changes. The benefits of using nano scale investigation include increase in product quality as well as increased manufacture efficiency. This will keep you competitive in today's market and help you stay ahead of your competitors. After all, good things come in small packages! To discuss the needs of your business please contact:

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