

profile

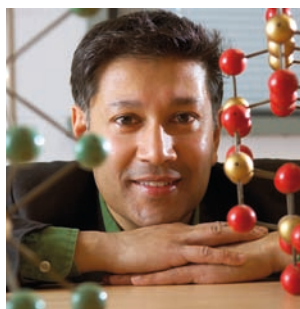
A closer look at our members and their interests

60
seconds
with...

Saiful Islam

Crystal gazing at clean energy materials

MATERIALS
CHEMISTRY
FOR SCHOOLS



SAIFUL ISLAM
CCHEM FRSC

Saiful Islam is professor of materials chemistry at the University of Bath. His research interests lie in the field of clean energy materials, especially new oxide and polyanion-type materials for new generations of lithium batteries and solid oxide fuel cells.

He has twice been guest editor for the RSC Journal of Materials Chemistry for themed issues covering advanced materials for lithium batteries (July 2011) and new energy materials (August 2007).

This year he was selected to give the Schools Lecture Series of the Materials Chemistry Division.

“Chemistry can reveal the intricacy and beauty of matter at the atomic level, which can be as visually aesthetic as the arts.”

Q How did you first become interested in chemistry?

A I'm not exactly sure. I remember being excited about a school project on growing crystals and also going to the Royal Institution for a fantastic schools lecture by the late Professor George (Lord) Porter. Until then, I hadn't realised that you could do chemistry as a full-time job.

Q What are you currently working on at the moment?

A My superb research group is working on a range of new materials including apatite ion-conductors for solid oxide fuel cells and iron-silicates for lithium-ion batteries. The latter offers the tantalising prospect of cheap and safe electrodes made from rust and sand. We're working with some great collaborators including Peter Bruce (St Andrews) and Peter Slater (Birmingham).

Q What role does computer modelling play in your research?

A It allows us to probe complex materials on the atomic and nano-scale, acting like virtual microscopes. We can reveal details that are difficult to extract from experiment alone, for example unravelling the motion of tiny protons or lithium ions. My work always has strong links with experiment where we aim to guide the development of new materials.

Q Can you tell us about your use of 3D images in your public lectures?

A I use 3D images to illustrate the crystal structures of lithium battery and fuel cell materials. I think they help

to show that chemistry can reveal the intricacy and beauty of matter at the atomic level, which can be as visually aesthetic as the arts.

The lectures also highlight that new materials and fundamental science are crucial to future exciting breakthroughs in green energy conversion and storage devices to help reduce carbon emissions.

I've enjoyed giving these lectures and hopefully they help to create a further buzz around chemistry and the global energy challenge.

Q What kind of challenges are facing chemistry at the moment?

A I think funding is a big issue. Under the previous government, there was a significant increase in science funding, but we're now facing austerity measures and deep cuts in the public sector and in research funding.

We need a coherent government strategy for science, as I believe that innovative science and engineering lies at the heart of the country's economic recovery and future job provision.

I still remain optimistic. Chemistry underpins so much of current science and the chemical industry remains one of the UK's most successful manufacturing industries.

Q What are your interests outside of research?

A I enjoy films, indie music (*The Smiths et al*) and reading novels (*The Road* by Cormac McCarthy was a recent highlight). As an atheist (humanist), I also dip into the writings of Polly Toynbee and Richard Dawkins. But lately I've become terrible at finishing books apart from my children's bedtime stories.

Saiful Islam was selected to deliver this year's RSC Schools Lecture Series of the Materials Chemistry Division. Saiful's talk, 'Watts New with Clean Energy? Batteries Included' uses 3D glasses to explore the properties of crystalline materials which are being used to create greener technologies.

Each year, the division selects an outstanding researcher and communicator to develop a lecture for school students and the public.

The lectures link cutting edge research with the school curriculum, and also highlight the many beneficial applications of materials chemistry research.

If you would like more information, or to suggest a possible lecturer for 2012 and beyond, please contact Deirdre Black, physical sciences programme manager at the RSC. blackd@rsc.org