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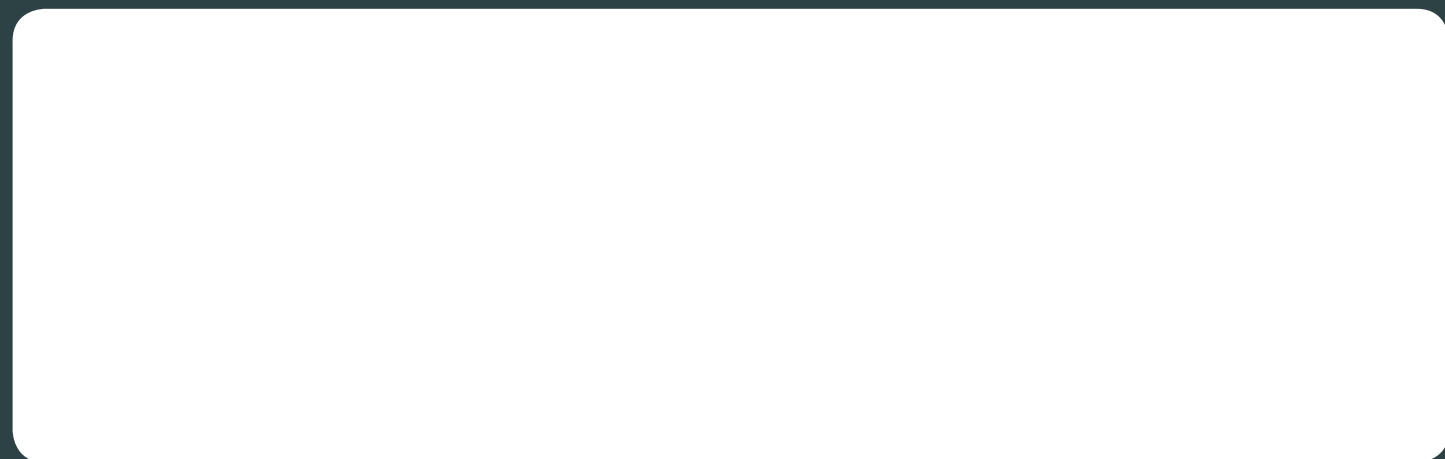
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# Faraday Discussions

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# New books

from the Royal Society of Chemistry

Our books publishing programme supports scientists, researchers, students and teachers with high quality, internationally respected chemical science titles spanning the breadth of our subject.

The books we're publishing in 2018 cover the core disciplines, related fields and emerging topics such as chemical biology and functional food. Contributions come from all over the world, from leading researchers including Emma Raven, Mark Vrakking, Jintao Zhang and Bill Price.

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It's been 10 years since the first book in our Catalysis series – *Carbons and Carbon Supported Catalysts in Hydroprocessing* – hit the shelves. Since then, the series has grown to include over 30 titles, and there are five more joining the series this year. Head to page 54 to read more.

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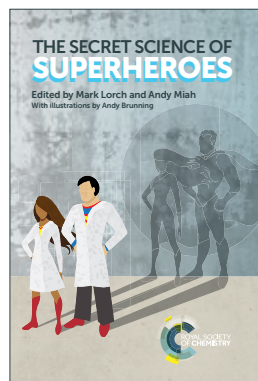
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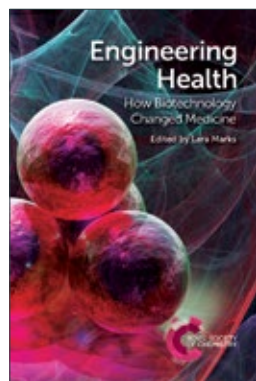


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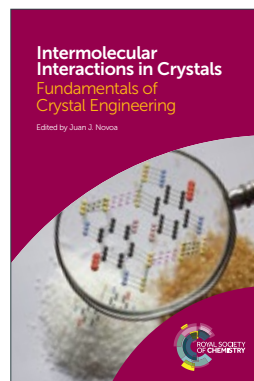
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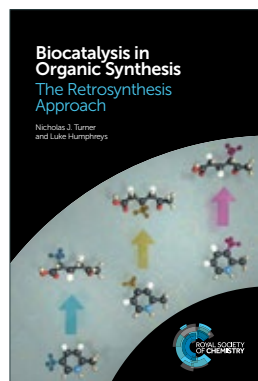
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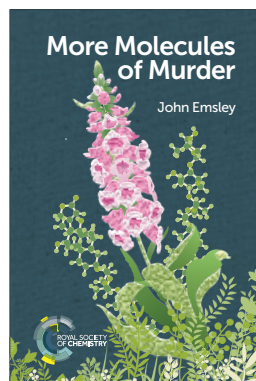
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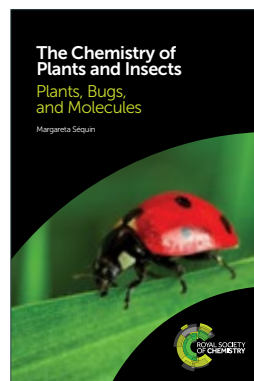
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## New in Faraday Discussions



Named after famous British scientist Michael Faraday, Faraday Discussions have a unique format. In advance of each meeting, research papers on a single topic written by the speakers are distributed to the delegates. Almost all of the meeting is devoted to discussion of the papers, with all delegates able to contribute to the discussion.

Afterwards, we publish a written record of the discussion, alongside the papers, which then becomes part of our Faraday Discussions series.

### How does a Faraday Discussion normally work?

Prior to the meeting, a scientific committee reviews the research papers they have received and decides whether it should be included in the programme and subsequent volume. All delegates read the selected papers in advance. They then have the opportunity to make comments, ask questions, or present complementary or contradictory measurements and calculations during the discussion. These contributions are known as 'discussion remarks'. If it is relevant to the topic, delegates may give a five-minute presentation of their own work during the discussion. These remarks are published alongside the papers in the final volume and are fully citable. We do not record the discussion verbatim, so the published record contains what the contributors said, or think they said or wished they had said.

Many Faraday Discussions have become landmarks in their field.

### New Faraday Discussions volumes in 2018

Topics under discussion in 2018 include designing nanoparticle systems for catalysis, photoinduced processes in nucleic acids and proteins, and artificial water channels.



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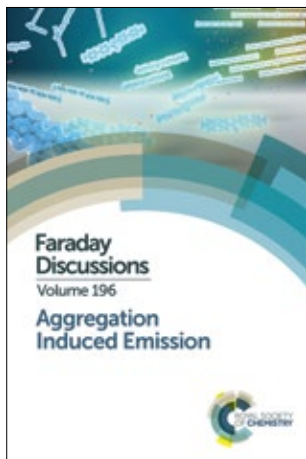


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Faraday Discussions covers a variety of topics in rapidly developing areas of the physical sciences, with a focus on physical chemistry and its interfaces with other scientific disciplines. The journal publishes the papers presented and a record of the questions, discussion and debate that took place at the corresponding Faraday Discussions meeting and provides an important record of current international knowledge and opinions in the relevant field. Each Faraday Discussion covers a topic in a rapidly developing area of chemistry, and will be of interest to academic and industrial chemists across all areas of the chemical sciences.

## Artificial Water Channels

### Faraday Discussion

Evolving rapidly, the field of artificial water channels is expected to offer new strategies to generate highly selective, advanced materials for water purification systems. The development of synthetic biomimetic artificial water-channels and pores is key to a better understanding of the natural function of protein channels. This book will have a strong emphasis on the key challenges in the area for example in the biophysics of protein water channels, biomimetics and what we may learn from natural proteins and synthesis and design of highly selective water channels.

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## Designing Nanoparticle Systems for Catalysis

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Heterogeneous catalysis is a core area of contemporary physical chemistry posing major fundamental and conceptual challenges, and nanoparticles are ubiquitous in many heterogeneous catalysts. It is now opportune to focus a Faraday Discussion concerning key aspects of their synthesis characterisation and use. This Faraday Discussion will explore the modern methods being used to design, synthesise and characterise nanoparticles and how these bridge across the disciplines of physical science and chemical engineering. The core aim of this discussion is to develop a fundamental understanding of these crucial aspects of catalytic science, especially relating to nanoparticle synthesis and its use in catalytic reactions, knowledge of which is essential for the design of new catalysts.

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## Electrochemistry at Nano-interfaces

### Faraday Discussion

The active nano-interface is important in electrochemistry because it constitutes the place where electron/ion transfer reactions occur coupled to extremely fast mass transport and under exquisite control of local conditions. Electrochemistry at nano-interfaces poses major fundamental and conceptual challenges in physical electrochemistry, while also being central to the emergence of real applications. This volume discusses the theme of understanding the electrochemistry at nano-interfaces, including electron- and ion-transfer. Topics explored include the modern methods used to design new nano-interfaces, probe the charge/energy transferring processes at the nano-interface, and promote applications including those involving single-molecule studies, single-nanoparticle electrochemistry and single-cell analysis.

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## Methods and Applications of Crystal Structure Prediction

### Faraday Discussion

The prediction of crystal structures from first principles has been one of the grand challenges for computational methods in chemistry and materials science. They have been used to study organic molecules such as polymorphism of pharmaceutical molecules or inorganic materials where the discovery and computational design are necessary. However, the communities addressing methods and applications in organic and inorganic crystal structure prediction have largely remained separate, due to the different approaches that have been used in these two areas. This book will encompass the cross-fertilisation of ideas and methods that result from a Faraday Discussion meeting which brought together these theoreticians and interested experimentalists. It will appeal to researchers from computational chemistry, crystallography and crystal engineering and materials science in the development of methods.

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## Photoinduced Processes in Nucleic Acids and Proteins

### Faraday Discussion

Light induced chemical and physical processes in small organic-/inorganic-/bio-molecules have been a subject of experimental and theoretical research for several decades. Photochemical and photophysical processes in biomolecules are intimately involved in a multitude of functional processes, that include vision, photosynthesis, molecular recognition, gene replication, etc., and can be used in areas such as photodynamic therapy. Such processes in DNA are also of interest to both the biological and materials communities as memory devices and structural building blocks. In this volume, the topics covered include light induced charge and energy transport in nucleic acids and proteins, photocrosslinking between nucleic acids and proteins, light induced damage and repair in nucleic acids and proteins and bionanophotonics.

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## Surface Enhanced Raman Scattering - SERS

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Academic and industrial interest in surface-enhanced Raman scattering (SERS) has grown over the past decade. This book discusses SERS enhancement from plasmonic and possibly non-plasmonic enhancing surfaces; applications in biological studies, including immunoassays and ultrasensitive biomolecular detection; single molecule detection; tip-enhanced Raman scattering (TERS); and analytical applications. This Faraday Discussion introduces new emerging areas and explores the diverse range of approaches and disciplines contributing to the growth and understanding of this optical phenomenon.

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# Introducing the faces behind the books

Our book authors and editors come from all over the world, and in 2018's book list you can find out more about them.



**Siân Astley**  
Editor of *Health Claims and Food Labelling*

"We are a bunch of fairly well understood chemical reactions in a bag of water and yet we understand so little about how individuals function."



What gets **David Tilley**, author of *Advances in Photoelectrochemical Water Splitting*, up in the morning?

"The knowledge that I will soon be drinking coffee."

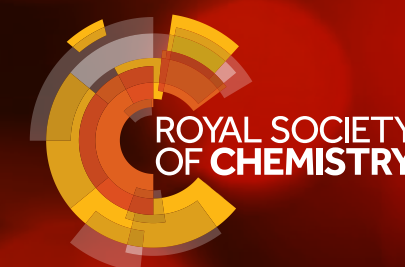


**William S Price**  
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"As soon as you answer one question, another equally challenging question arises."

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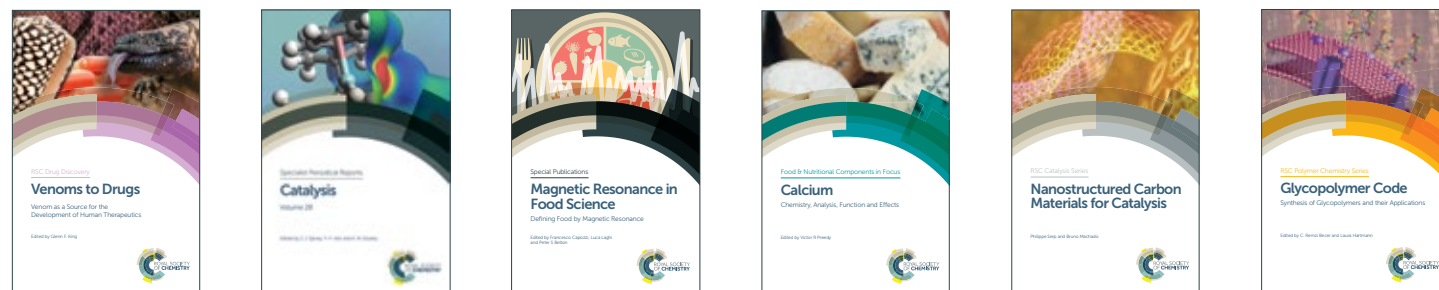
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