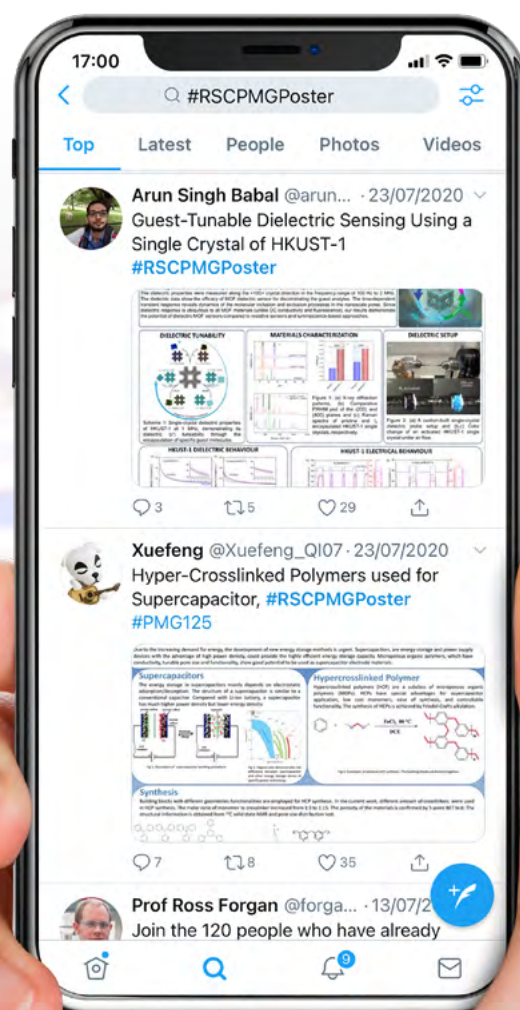


# Business as unusual: Porous materials researchers move online

**Hidden Isochema is proudly sponsoring RSC online activities during the COVID-19 pandemic.**

As the world continues to respond to the coronavirus crisis, and many scientific groups embrace a more digital approach, the Royal Society of Chemistry's Porous Materials Interest Group have been looking at alternative ways to bring together members of the porous materials community. Hidden Isochema is delighted to be able to support the group's digital initiatives, with sponsorship of their regular online seminar and the RSC Porous Materials Group Poster Conference 2020.



# The online poster event was introduced to bring members of the porous materials community together to network, share their research and engage in scientific debate.

A range of porous materials were covered – from silicas, carbons and zeolites to polymers, organic cages and metal-organic frameworks (MOFs) – while applications included drug delivery, photocatalysis, and liquid phase removal of toxic species. Adsorption was well represented, with a number of posters featuring H<sub>2</sub> storage, CO<sub>2</sub> capture, and various other gas separations.

During the event, each presenter tweeted their poster and entries were assessed by a team of judges, which included Dr Darren Broom, Hiden Isochema Product Manager. The high standard made the judging a genuinely challenging task.

**Jamie Gould**  
@JamieAGould

Thanks to everyone who took part in [#RSCPMGPoster](#), either as an participant, judge, organiser, or just someone who was interested in the science. It's amazing to see the brilliant and varied porous materials research out there. Please keep this going over the weekend and beyond.

5:04 PM · Jul 24, 2020

38 See Jamie Gould's other Tweets

**Gareth Davies CChem MRSC**  
@MembershipGD

It has been amazing today to see all the contributors involved in [#RSCPMGPoster](#). Even in these strange times, our community is coming together to share their findings and help build each other up. And it has all been done by our amazing volunteers! [#sharingiscaring](#)

1:35 PM · Jul 23, 2020

14 See Gareth Davies CChem MRSC's other Tweets

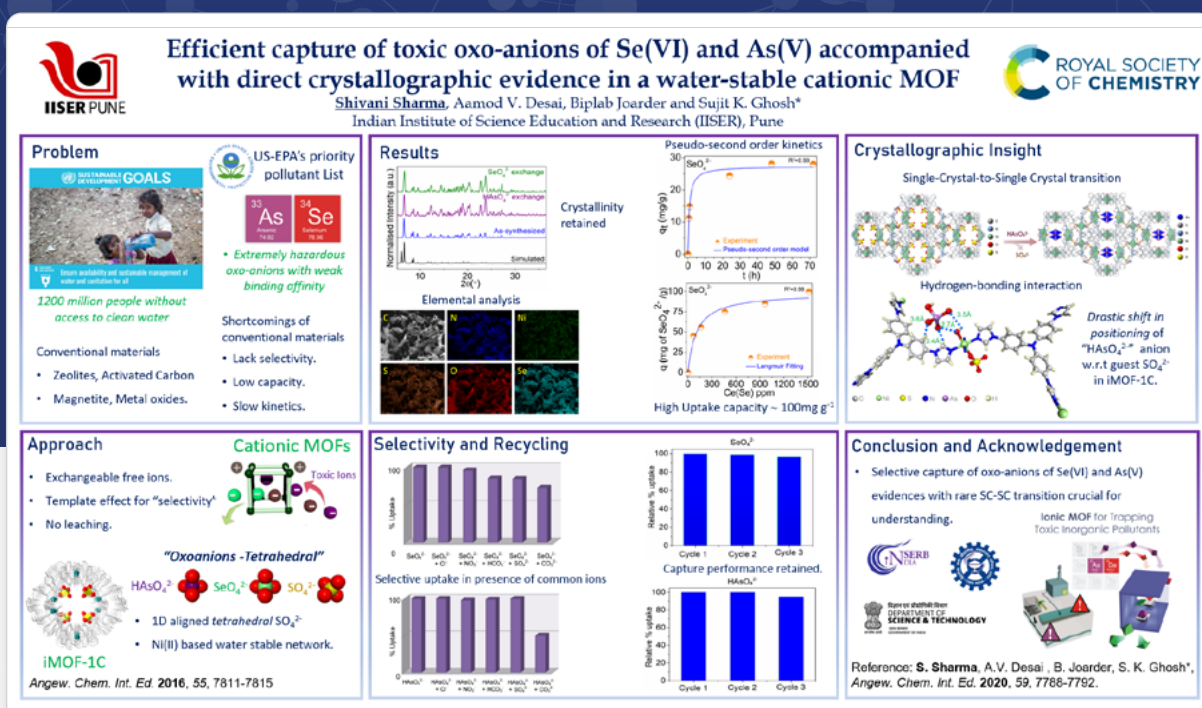
**Chemical Science**  
@ChemicalScience

The RSC Porous Materials Group Poster Conference is happening right now! 🎉 Check out all the posters today and tomorrow at [#RSCPMGPoster](#) 🤖 Make sure to keep an eye on [@RSC\\_PorMat](#) for updates throughout 23 – 24 July

9:30 AM · Jul 23, 2020

24 See Chemical Science's other Tweets

We would like to congratulate all the well-deserved winning entries, in particular the overall winner, Shivani Sharma, from the Indian Institute of Science Education and Research (IISER), Pune, India, who received a cash prize of £150 from Hiden Isochema.





# The winning entries are as follows:



**Self-assembly of nanoparticles in emulsion: A green approach to produce tuneable silica composites**

**David Brossault**, University of Cambridge, UK

Awarded: £100 from RSC journal Molecular Systems Design & Engineering



**Low-field NMR relaxation exchange measurements for the study of gas admission in microporous solids**

**Neil Robinson**, The University of Western Australia, Perth, Australia

Awarded: £100 from Hiden Isochema



**Revealing the drug release from MOF nanocomposites (in situ)**

**Barbara Souza**, University of Oxford, UK

Awarded: £100 from Hiden Isochema



**Guest-mediated flexibility in a pillared-layered MOF**

**Gemma Turner**, The University of Western Australia, Perth, Australia

Awarded: £50 from Hiden Isochema



**H-bonds and redox reactions make CO<sub>2</sub>(OH)<sub>2</sub>BBTA the first extended framework with a negative cooperativity behavior for O<sub>2</sub>**

**Jenny Vitillo**, University of Insubria, Italy

Awarded: £50 from Hiden Isochema



**Three-Dimensional Electron Diffraction (3DED) for structural elucidation of porous nanocrystals**

**Zhehao Huang**, Stockholm University, Sweden

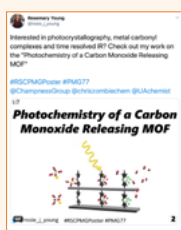
Awarded: £50 from Hiden Isochema



**Ultramicropores in carbons made from cigarette butts might improve CO<sub>2</sub> capacity**

**Scott Blankenship**, University of Nottingham, UK

Awarded: £50 RSC book voucher from RSC journal Molecular Systems Design & Engineering



**Photochemistry of a carbon monoxide releasing MOF**

**Rosemary Young**, University of Nottingham, UK

Awarded: £50 RSC book voucher from RSC journal Molecular Systems Design & Engineering

## Learning during lockdown: digital seminars unite porous materials community

RSC Porous Materials Interest Group online seminar series was introduced to help unite members of the porous materials community; sharing knowledge and engaging in discussion. Hiden Isochema is proud to sponsor the series, which commenced in May, with the first session being delivered by Prof Neil Champness, School of Chemistry, University of Nottingham, UK. The weekly seminars have continued to attract a diverse, global audience, and despite many laboratories and workplaces starting to resume 'normal business', the online seminars have been so popular, the series has been extended to continue into 2021 on a fortnightly basis.

*"Our online seminars have been hugely successful, and we are delighted that our audience are tuning in every fortnight and contributing to our active community. Whilst the demand is there, we will continue to add more topics and feature key speakers from around the globe. To date we've had over 2,000 participants, with some stating it's the highlight of their week!"*

Dr Thomas Bennett, chair of the Royal Society of Chemistry Interest Group on Porous Materials

## Connecting academia with industry

The RSC Porous Materials Interest Group aims to bring together scientists



from all career stages involved in research into porous materials, from metal-organic frameworks and zeolites to porous polymers and organic molecules. The group aims to foster links between academic research and industry in this burgeoning area of science, and enable the development of an active community based around shared interests and knowledge.

For regular updates, follow the group on Twitter [@RSC\\_PorMat](https://twitter.com/RSC_PorMat) or visit [www.rsc.org/Membership/Networking/InterestGroups/PorousMaterials/](http://www.rsc.org/Membership/Networking/InterestGroups/PorousMaterials/)

## Embracing change with digital conferences

There is no doubt that virtual conferences in the current time of COVID-19 raise challenges for organizers, attendees and speakers. However, it is triggering a shift in how conferences of the future could look, and one of the greatest beneficiaries has certainly been the environment. Relocating conferences online has also made them accessible to a larger and more diverse audience; removing barriers associated with travel instantly renders many conferences more inclusive.

Hiden Isochema has recently participated in the North American Membrane Society (NAMS) Annual Meeting, Interpore, and [MOF2020](https://www.rsc.org/Membership/Networking/InterestGroups/PorousMaterials/)<sup>WEB</sup> online conferences, where our virtual booths were available for participants to stop by and chat, or browse and download our marketing material, in between attending online sessions. We look forward to supporting more online conferences in the future, and hope to 'see' you soon in one of our virtual booths!

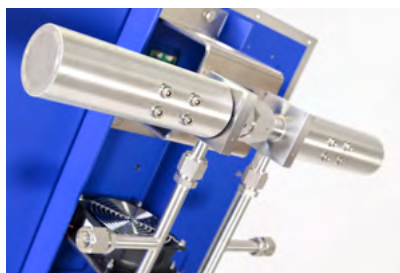
# New NIST interlaboratory study on high pressure CH<sub>4</sub> adsorption

A new study, published recently in the journal *Adsorption*, reports the results of an international interlaboratory study on the measurement of high pressure CH<sub>4</sub> adsorption isotherms on NIST Reference Material RM 8850 (Zeolite Y), at 25 °C up to 7.5 MPa.<sup>1</sup>

Funded by the US Department of Energy, the study was coordinated by the Versailles Project on Advanced Materials and Standards (VAMAS) along with the Facility for Adsorbent Characterization and Testing ('FACT Lab'), which was established at the US National Institute of Standards and Technology (NIST). Twenty laboratories – from universities, research institutes, and companies including General Motors and Hiden Isochema – participated in the study, contributing over one hundred adsorption isotherms.

The study was a follow-up to an earlier paper, published in 2018, on CO<sub>2</sub> adsorption by another NIST reference material (RM 8852).<sup>2</sup> A unique feature of this latest work was that CO<sub>2</sub> adsorption measurements on RM 8852 were used to test the instrumentation and protocols of participants who were not involved in the earlier study. Data from the laboratories that satisfied pre-determined criteria for the CO<sub>2</sub> adsorption measurements were then included in the compiled data used to define the reference CH<sub>4</sub> adsorption isotherm.

Isotherm data contributed by Hiden Isochema, a participant in the earlier study, were measured using a **XEMIS-001** gravimetric gas sorption analyzer, and were included in the final reference dataset. More generally, these valuable efforts by NIST have so far resulted in two reference materials that can be used by anyone to validate operation of both manometric and gravimetric gas sorption instruments. Further details can be found in the original papers.<sup>1,2</sup>



## References

- [1] H. G. T. Nguyen et al, *Adsorption*, 2020. DOI:10.1007/s10450-020-00253-0  
[2] H. G. T. Nguyen et al, *Adsorption*, 2018, 24, 531-539

## PUBLICATION ROUND-UP

### Wood Science

#### Parameter estimation and model selection for water sorption in a wood fibre material

J. Berger, T. Colinart, B. R. Loiola and H. R. B. Orlande

Wood Science and Technology, 2020, DOI: 10.1007/s00226-020-01206-0

Researchers from four different institutions in France and Brazil present a detailed analysis of water sorption isotherm models for wood fibre insulation, for the purpose of simulating heat and mass transfer in porous building materials. Using data measured on an **IGAsorp**, in a relative humidity range from 0.05 to 0.9, at 23 °C, eight different models were considered, including the well-known Guggenheim–Anderson–de Boer (GAB) isotherm and a new model developed by the authors. An Approximate Bayesian Computation (ABC) algorithm, employing sequential Monte Carlo sampling, was used for model selection, with the GAB isotherm being amongst the most reliable of those considered in the study.

### Water Sorption in Zeolites

#### Measurements and modeling of water adsorption isotherms of zeolite Linde-Type A crystals

Y. Wang

Industrial & Engineering Chemistry Research, 2020, 59(17), 8304-8314

Dr Yu Wang of ExxonMobil Corporate Strategic Research, New Jersey, USA, presents a thorough study of the water adsorption properties of zeolites 3A and 4A. Isotherms were measured using an **IGA-002**, in the temperature range 25-250 °C, at pressures between  $1 \times 10^{-5}$  and  $3 \times 10^{-2}$  bar – conditions aimed at mimicking those in deep hydration units for natural gas treatment. Three different multi-temperature models were used to fit the data; one based on the Tóth isotherm and the others on the Langmuir equation. Of these, a three-site Langmuir model provided the best fit to the experimental data.



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