



SCMMMS News

October 2022

Autumn greetings to you!

We had two successful joint webinars in September with very engaging audience. Many thanks to IOM3 Natural Materials Group for co-organising the webinar titled **Biomimicry & Natural Materials: Developments for future use** on 15 September and Cambridge and Anglian Materials Society (CamSoc) and Henry Royce Institute for co-organising **Developments in Energy Materials** webinar on 29 September. Huge thanks to all the speakers and participants of these webinars.

The SCMMMS Committee would also like to hear from you if you have any thoughts on future themes we could cover, or even volunteer to present. Please contact us using the details at the end.

We look forward to welcome you for the forthcoming events.



Upcoming SCMMMS Events

Polymers in Nanomedicine - 27 October



Affiliated with **I-M3**

Polymers in Nanomedicine

27 October 2022 | 13:00 – 14:30 (GMT)



Chemical metrology to support QC and QA procedures of polymeric nanomedicine

Chair: Dr. Yiyen Pei MRSC CCHEM

National Physical Laboratory, UK

Knowledge of chemistry and structure of polymeric drug carriers is of great importance to the control of the performance and stability of nanomedicine which influence their biological fate. However, this information is often assumed rather than measured. In this talk, I will demonstrate the use of quantitative chemical analysis to reveal the internal chemical distribution of particles and how this work supports QC and QA of polymeric nanomedicine.

The effects of ice annealing on reconstitution of a nanoparticle lyophile formulation

Dr. Richard A Storey

AstraZeneca Pharmaceuticals, Macclesfield, UK

Lyophilisation can offer stability benefits to formulations due to the ability to store at temperature conditions. However, for more complex formulations excipients are required which, due to the high solids content, can have slow reconstitution. This was the case with a recent nanoparticle formulation where, due to poor breakup of the lyophile cake, reconstitution took around an hour. This duration would be challenging for use in a clinic. It was also observed that there was wide variability in the porosity of the solids in the vials. Process optimisation, with annealing, utilising micro-CT imaging has improved the porosity of the solids and ensured good homogeneity across all the vials and reduced the reconstitution time to two minutes.



Analytical methods for measuring the encapsulation efficiency of polymeric nanoparticles

Dr. Sara Marques

University of Porto, Portugal

Accurate estimations of the amount of drug associated with nanoparticles (encapsulation efficiency, EE) are required during formulation development to establish dose-response effects and to evaluate manufacture reproducibility. Precise EE measurements rely on the efficient separation of the free drug from the drug-loaded nanoparticles (NPs) prior to a quantification step commonly achieved by HPLC. Separative procedures ensuring the maintenance of NPs properties must be implemented, to avoid estimation errors due to NPs alterations (e.g., leakage, adsorption, disruption) or free drug precipitation events. In this talk, the impact of NPs material and of drug properties on the conditions to separate drug-loaded polymeric NPs from free drug by ultrafiltration will be discussed. The use of an alternative size-based exclusion strategy under HPLC to separate NPs from free drug for EE and concentration measurements will be also covered.



Polymeric materials for mRNA vaccine delivery

Dr. Pratik Gurnani

University of Nottingham, UK

The COVID-19 pandemic has accelerated the clinical application of mRNA-based vaccines, notably from Moderna (SpikeVax) and Pfizer-BioNTech (Comirnaty). In my talk I will cover our recent research into developing new highly active polymer materials for mRNA vaccine delivery and discuss how materials design is imperative for performance within these applications.



Organised by the
Southern Counties Materials Minerals and Mining Society
(SCMMMS)

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Contact: Nimmi Chidambaram / Ana Robador / Jasmine Stone

I-M3 Approved
for CPD
2022

Registration (FREE): [Polymers in Nanomedicine, Thu 27 Oct 2022 at 13:00](#)

[Download Flyer](#)

Materials in Sport - 24 November

This session is focused on innovative materials used in sport from cricket bats, cycling helmets to a cricket stadium in Rwanda.

The webinar will be on 24 November from 13:00-14:30 and chaired by Duncan Edser (National Physical Laboratory).

Invited speakers are:

- **Ben Tinkler-Davies** (University of Cambridge)
- **Ana Gatóo** (University of Cambridge)
- **Prof. Fritz Vollrath** (University of Oxford)

More details will be available soon.

Other South East Local Society Events

MINSOUTH : AGM & Technical Meeting



Ken Darlington, Vice-President of Business Development for *Ultra Safe Nuclear Corporation* (USNC) will be conducting a virtual presentation on **Application of micro reactors at mining operations**.

Tuesday October 18th at 6 p.m.

This presentation can be watched in the Griffiths Room of The Counting House, 50 Cornhill, EC3V 3PD or online.

More details and registration: [AGM & Application of Micro Reactors in Mining Operations Lecture Tickets, Tue 18 Oct 2022 at 18:00 | Eventbrite](#)

Membership of SCMMMS

If you are an existing member of IOM3, you can manage your profile to set SCMMMS as one of your preferred networks. This will help us keep you updated of our activities.

The committee is also trying to appoint **representatives in the universities** within the region to act as coordinators either to promote or organise the events. We are keen to hear your views on how best SCMMMS can support to act as a valuable network for students and the practising researchers community.

If you would like to support in the activities of the society, including interest in joining the committee, please email SCMMMS at southerncountiesmmms@gmail.com

Contact Us

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