

# Soft Matter

Where physics meets chemistry meets biology for fundamental soft matter research

[rsc.li/soft-matter-journal](https://rsc.li/soft-matter-journal)

The Royal Society of Chemistry is the world's leading chemistry community. Through our high impact journals and publications we connect the world with the chemical sciences and invest the profits back into the chemistry community.

## IN THIS ISSUE

ISSN 1744-6848 CODEN SMOABF 21(9) 1595–1772 (2025)



### Cover

See Olga Kuksenok et al., pp. 1624–1638.  
Image reproduced by permission of Olga Kuksenok and Zafrin F. Mira from *Soft Matter*, 2025, 21, 1624.



### Inside cover

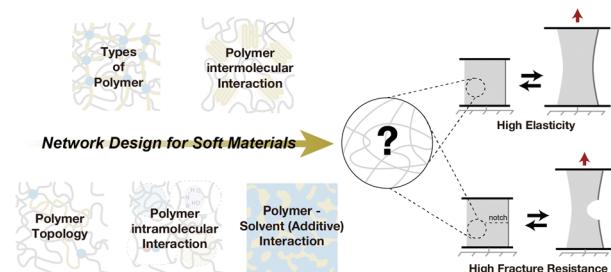
See Bart Jan Ravoo et al., pp. 1639–1645.  
Image reproduced by permission of Ashutosh Kanjoliya and Bart Jan Ravoo from *Soft Matter*, 2025, 21, 1639.  
Cover image designed by Ashutosh Kanjoliya and Nina Knubel.

## REVIEW

1603

### Network design for soft materials: addressing elasticity and fracture resistance challenges

Yong Eun Cho, Sihwan Lee, Sang Jun Ma and Jeong-Yun Sun\*

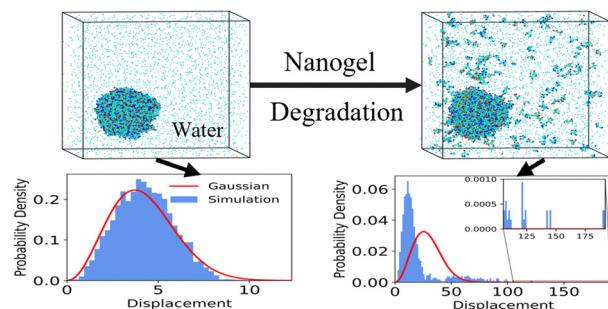


## PAPERS

1624

### Characterizing dynamic heterogeneities during nanogel degradation

Zafrin Ferdous Mira, Vaibhav Palkar and Olga Kuksenok\*



# Royal Society of Chemistry approved training courses

Explore your options.  
Develop your skills.  
Discover learning  
that suits you.

**Courses in the classroom,  
the lab, or online**

Find something for every  
stage of your professional  
development. Search our  
database by:

- subject area
- location
- event type
- skill level

Members get at least 10% off

Visit [rsc.li/cpd-training](https://rsc.li/cpd-training)

**SAVE  
10%**

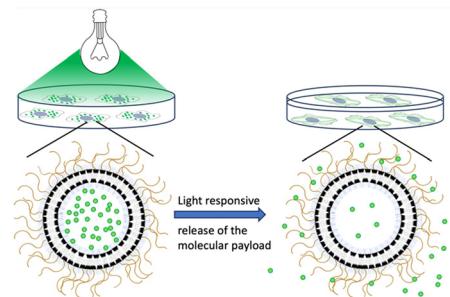


## PAPERS

1639

**Nanocarriers for intracellular delivery of molecular payloads triggered by visible light**

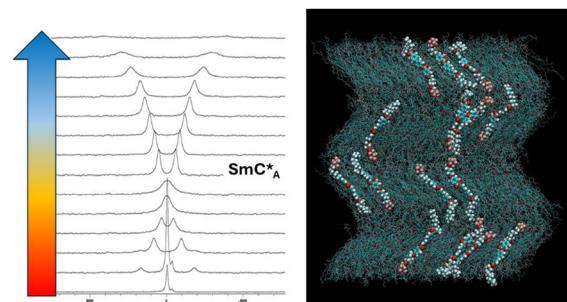
Ashutosh Kanojiya, Julian Terglane, Volker Gerke and Bart Jan Ravoo\*



1646

**Chemical and physical properties of orthoconic liquid crystals:  $^2\text{H}$  NMR spectroscopy and molecular dynamics simulations**

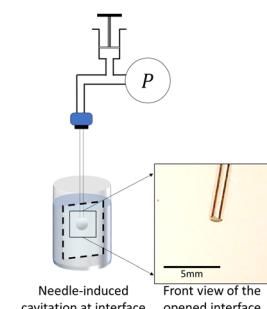
Anna Drzewicz, Martina Rossi, Mario Cifelli, Giacomo Saielli, Marzena Tykarska and Valentina Domenici\*



1662

**Measuring interfacial strength of ultra-soft materials with needle-induced cavitation**

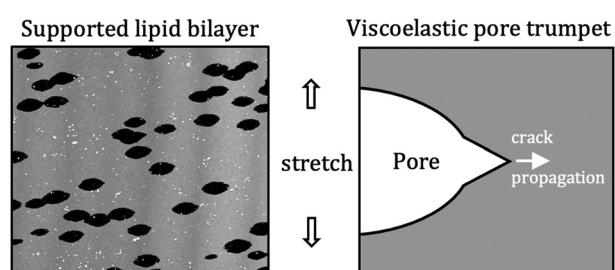
Hongbo Fu and Alfred J. Crosby\*



1669

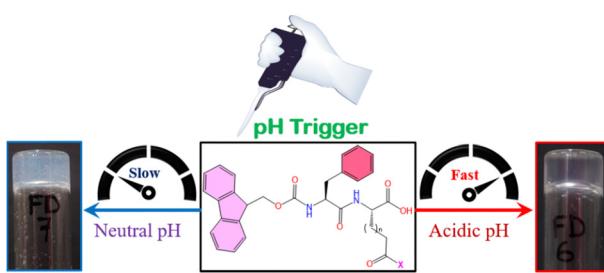
**Lipid bilayer fracture under uniaxial stretch**

Rachel Joanne Goodband and Margarita Staykova\*



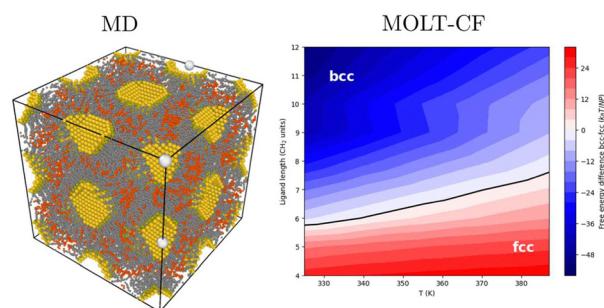
## PAPERS

1676


**Fmoc-conjugated dipeptide-based hydrogels and their pH-tunable behaviour**

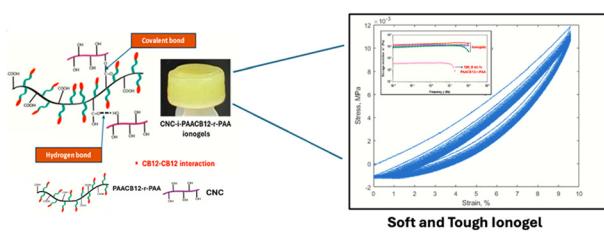
Soumen Kuila, Souvik Misra, Riya Saha, Laboni Ghosh, Pijush Singh, Anamika Ghosh, Kolimi Prashanth Reddy, Subhradip Pandit, Debabani Ganguly, Pallab Datta, Samik Bindu, Gouranga Nandi, Suman Samai and Jayanta Nanda\*

1686


**Temperature dependence of phase diagrams and dynamics in nanocrystal assembly by solvent evaporation**

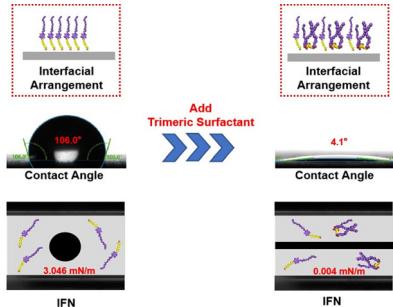
Alex Upah, Leandro Missoni, Mario Tagliazucchi\* and Alex Traverset\*

1699


**Soft and tough cellulose nanocrystals interlocked with polyacrylate-bearing cyanobiphenyl ionogels through a double network strategy**

Patrick K. Njenga, Francis K. Masese, Dennis M. Ndaya, M. Daniela Morales-Acosta, Nicholas Eddy and Rajeswari M. Kasi\*

1710


**Enhancing surface/interface activity and wettability via trimeric surfactant-containing mixtures**

Chao Zhang, Jianlin Jiang, Linbi Zhou, Lili Zhou,\* Bing Qin\* and Fulin Qiao\*

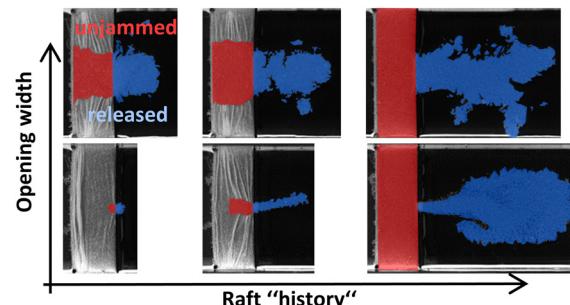


## PAPERS

1718

**Unjamming of particle-laden interfaces: effects of geometry and history**

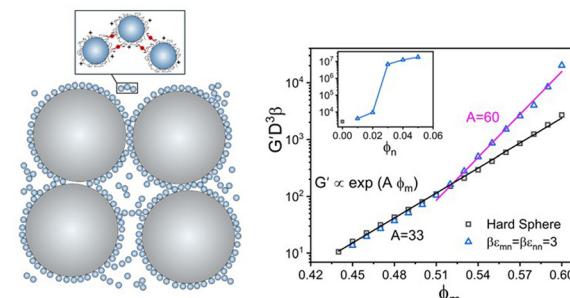
Carole Planchette\* and Gregor Plohl



1731

**Theoretical study of the impact of dilute nanoparticle additives on the shear elasticity of dense colloidal suspensions**

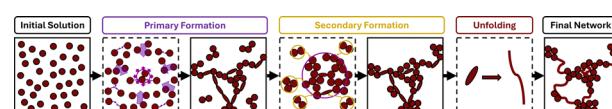
Subhasish Chaki, Benito Román-Manso, Larissa Senatus, Jennifer A. Lewis and Kenneth S. Schweizer\*



1748

**Capturing the impact of protein unfolding on the dynamic assembly of protein networks**

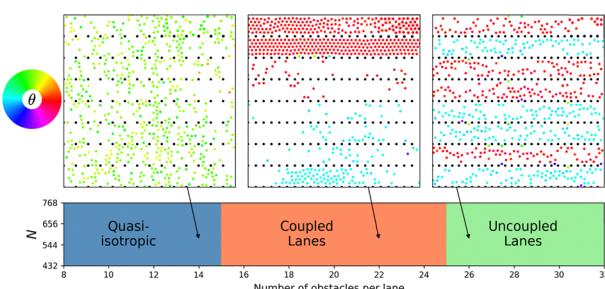
Matt D. G. Hughes, Sophie Cussons, Ahmad Borumand, Arwen I. I. Tyler, David J. Brockwell and Lorna Dougan\*



1760

**Polarization and dynamic phases of aligning active matter in periodic obstacle arrays**

Daniel Canavello, C. Reichhardt, C. J. O. Reichhardt and Clécio C. de Souza Silva\*



## CORRECTIONS

1768

**Correction: *Anoplophora graafi* longhorn beetle coloration is due to disordered diamond-like packed spheres**

Kenza Djeghdi, Cédric Schumacher, Viola Bauernfeind, Ilja Gunkel, Bodo D. Wilts\* and Ullrich Steiner

1769

**Correction: Topological defects induced by air inclusions in ferroelectric nematic liquid crystals with ionic doping**

Zhongjie Ma, Shengzhu Yi, Miao Jiang, Mingjun Huang, Satoshi Aya, Rui Zhang and Qi-Huo Wei\*