# Soft Matter

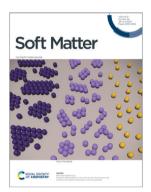
Where physics meets chemistry meets biology for fundamental soft matter research

# 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 19(24) 4393-4602 (2023)



#### Cover

See Bhuvnesh Bharti et al., pp. 4439-4448. Image reproduced by permission of Hashir M. Gauri and Bhuvnesh Bharti from Soft Matter. 2023, 19, 4439.



### Inside cover

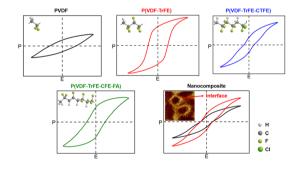
See Fenrong Liu, Wangjing Ma et al., pp. 4449-4457. Image reproduced by permission of Wangjing Ma from Soft Matter. 2023, 19, 4449.

#### **REVIEW**

#### 4401

Design and characterization of molecular, crystal and interfacial structures of PVDF-based dielectric nanocomposites for electric energy storage

Ning Zhu, Jingtao Zhou, Lei Zhang, Ni Yao, Davoud Dastan, Jian Zhang,\* Yingxin Chen\* and Xuefeng Zhang

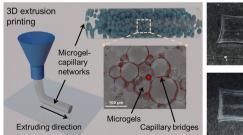


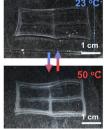
## COMMUNICATION

## 4432

Rheological responses of microgel suspensions with temperature-responsive capillary networks

Zhecun Guan, Lisa Tang and Jinhye Bae\*





#### **Editorial Staff**

**Executive Editor** 

Maria Southall

Deputy Editor

Laura Ghandhi

Editorial Production Manager

**Emily Skinner** 

Assistant Editors

Sean Browner, Molly Colgate, Paul Scott, Alison Winder

**Editorial Assistant** 

Basita Javeed

Publishing Assistant Allison Holloway

Publisher

Sam Keltie

For queries about submitted papers, please contact
Emily Skinner Editorial Production Manager in the first instance.
E-mail: softmatter@rsc.org

For pre-submission queries please contact Maria Southall, Executive Editor. E-mail: softmatter-rsc@rsc.org

Soft Matter (electronic: ISSN 1744-6848)

is published 48 times a year by the Royal Society of Chemistry, Thomas Graham House, Science Park, Milton Road, Cambridge, UK CB4 OWF.

All orders, with cheques made payable to the Royal Society of Chemistry, should be sent to the Royal Society of Chemistry Order Department, Royal Society of Chemistry,

Thomas Graham House, Science Park, Milton Road, Cambridge, CB4 0WF, UK

Tel +44 (0)1223 432398; E-mail: orders@rsc.org

2023 Annual (electronic) subscription price: £1641; \$2891. Customers in Canada will be subject to a surcharge to cover GST. Customers in the EU subscribing to the electronic version only will be charged VAT.

If you take an institutional subscription to any Royal Society of Chemistry journal you are entitled to free, site-wide web access to that journal. You can arrange access via Internet Protocol (IP) address at www.rsc.org/ip

Customers should make payments by cheque in sterling payable on a UK clearing bank or in US dollars payable on a US clearing bank.

Whilst this material has been produced with all due care, the Royal Society of Chemistry cannot be held responsible or liable for its accuracy and completeness, nor for any consequences arising from any errors or the use of the information contained in this publication. The publication of advertisements does not constitute any endorsement by the Royal Society of Chemistry or Authors of any products advertised. The views and opinions advanced by contributors do not necessarily reflect those of the Royal Society of Chemistry which shall not be liable for any resulting loss or damage arising as a result of reliance upon this material. The Royal Society of Chemistry is a charity, registered in England and Wales, Number 207890, and a company incorporated in England by Royal Charter (Registered No. RC000524), registered office:
Burlington House, Piccadilly, London W1J 0BA, UK,

#### Advertisement sales:

Telephone: +44 (0) 207 4378 6556.

Tel +44 (0) 1223 432246; Fax +44 (0) 1223 426017; E-mail: advertising@rsc.org

For marketing opportunities relating to this journal, contact marketing@rsc.org

# Soft Matter

rsc.li/soft-matter-journal

An interdisciplinary journal focusing on innovative soft matter topics through original research amd reviews.

#### **Editorial Board**

Editor-in-Chief

Alfred Crosby, University of Massachusetts
Amherst USA

Associate Editors

Tommy Angelini, University of Florida, USA Ewa Górecka, Warsaw University, Poland Jianbin Huang, Peking University, China Sanat Kumar, Columbia University, USA Guruswamy Kumaraswamy, Indian Institute of Technology Bombay, India Zhihong Nie, Fudan University, China Amy Shen, Okinawa Institute of Science and Technology, Japan Emanuela Zaccarelli, Sapienza University of Rome, Italy Xuehua Zhang, University of Alberta, Canada Editorial Board members

Editorial Board members Lorna Dougan, University of Leeds, UK

#### **Advisory Board**

Dave Adams, University of Glasgow, UK Shaun Ahn, Dow, USA Markus Antonietti, Max Planck Institute of Colloids and Interfaces, Germany Omar Azzaroni, UNLP, Argentina Piero Baglioni, University of Florence, Italy

Piero Bagiloni, University of Fiorence, italy Anna Balazs, University of Pittsburgh, USA Arindam Banerjee, Indian Association for the Cultivation of Science, India Madivala Basavarai, Indian Institute of Technology

Madras, India Patricia Bassereau, Physico Chimie Curie Lab,

Patricia Bassereau, Physico Chimie Curie Lab France

Jasna Brujic, New York University, USA Jacinta Conrad, University of Houston, USA Vincent Craig, Australian National University, Australia

Emanuela Del Gado, Georgetown University, USA Jan Dhont, Forschungszentrum Jülich, Germany

Carmen Domene, University of Bath, UK Zahra Fakhraai, University of Pennysylvania, USA Glenn Fredrickson, University of California at Santa Barbara, USA

Valeria Garbin, TU Delft, The Netherlands

Jian Ping Gong, Hokkaido University, Japan Ian Hamley, University of Reading, UK Lucio Isa, ETH Zurich, Switzerland Paul Janmey, University of Pennsylvania, USA Gijsje Koenderink, AMOLF, Netherlands Daniela Kraft, Leiden University, Netherlands Eugenia Kumacheva, University of Toronto, Canada

Oleg Lavrentovich, Kent State University, USA Junbai Li, Institute of Chemistry, Chinese Academy of Sciences, China

Christos Likos, University of Vienna, Austria Dongsheng Liu, Tsinghua University, China Tom McLeish, University of York, UK Bradley Olsen, Massachusetts Institute of Technology, USA

Rossana Pasquino, The University of Naples Federico II, Italy Susan Perkin, University of Oxford, UK

Sarah Perry, University of Massachusetts Amherst, USA Darrin Pochan, University of Delaware, USA

David Quéré, ESPCI, France Sriram Ramaswamy, Indian Institute of Science, Meital Reches, The Hebrew University of Jerusalem, Israel Alejandro Rey, McGill University, Canada Connie Roth, Emory University, USA Michael Rubinstein, Duke University, USA Sam Safran, Weizmann Institute of Science, Israel Takamasa Sakai, The University of Tokyo, Japan Peter Schurtenburger, Lund University, Sweden Kathleen Stebe, University of Pennslyvania, USA Joakim Stenhammar, Lund University, Sweden Howard Stone, Princeton University, USA

Hajime Tanaka, University of Tokyo, Japan Evelyne Van Ruymbeke, Université Catholique de Louvain, Belgium Jan Vermant, ETH Zurich, Switzerland Petia Vlahovska, Northwestern University, USA

Dimitris Vlassopoulos, University of Crete, Greece Yilin Wang, Institute of Chemistry, Chinese Academy of Sciences, China Catherine Whitby, Massey University of New

Zealand, New Zealand
Tim White, University of Colorado, USA
Duyang Zang, Northwestern Polytechnical

#### Information for Authors

Full details on how to submit material for publication in Soft Matter are given in the Instructions for Authors (available from http://www.rsc.org/authors). Submissions should be made via the journal's homepage: rsc.li/soft-matter-journal. Submissions: The journal welcomes submissions of manuscripts for publication as Full Papers, Communications, Reviews, Perspectives, Tutorial Reviews. Full Papers and Communications should describe original work of high quality and impact.

Additional details are available from the Editorial Office or http://www.rsc.org/authors

Authors may reproduce/republish portions of their published contribution without seeking permission from the Royal Society of Chemistry, provided that any such republication is accompanied by an acknowledgement in the form: (Original Citation)—Reproduced by permission of the Royal Society of Chemistry.

This journal is © The Royal Society of Chemistry 2023.

Apart from fair dealing for the purposes of research or private study for non-commercial purposes, or criticism or review, as permitted under the Copyright, Designs and Patents Act 1988 and the Copyright and Related Rights Regulation 2003, this publication may only be reproduced, stored or transmitted, in any form or by any means, with the prior permission in writing of the Publishers or in the case of reprographic reproduction in accordance with the terms of licences issued by the Copyright Licensing Agency in the UK. US copyright law is applicable to users in the USA.

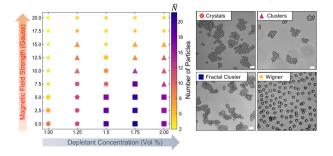
Registered charity number: 207890



#### 4439

Magnetic field enabled in situ control over the structure and dynamics of colloids interacting via SALR potentials

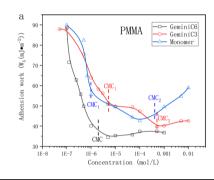
Hashir M. Gauri, Zachary M. Sherman, Ahmed Al Harraq, Thomas M. Truskett and Bhuvnesh Bharti\*



### 4449

Wetting effect of branched anionic Gemini surfactant aqueous solution on PMMA surface

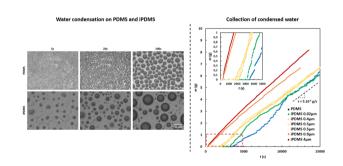
Dengxi Zhang, Zhicheng Xu, Zhiqiang Jin, Lei Zhang, Lu Zhang, Fenrong Liu\* and Wangjing Ma\*



### 4458

Nucleation-enhanced condensation and fast shedding on self-lubricated silicone organogels

Nicolas Lavielle,\* Daniel Beysens and Anne Mongruel



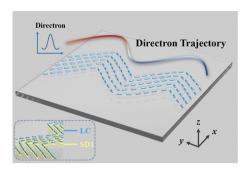
## 4470

Patchy particle insights into self-assembly of transparent, graded index squid lenses

Irem Altan,\* Viola Bauernfeind and Alison M. Sweeney\*



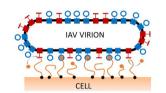
#### 4483

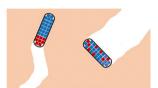


## Trajectory engineering of directrons in liquid crystals via photoalignment

Ke-Hui Wu, Chang-Qi Chen, Yuan Shen, Yu Cao, Sen-Sen Li,\* Ingo Dierking and Lu-Jian Chen\*

#### 4491

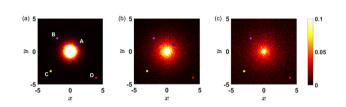




## The sliding motility of the bacilliform virions of Influenza A viruses

Laurie Stevens, Sophie de Buyl and Bortolo Matteo Mognetti\*

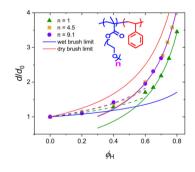
### 4502



## Resetting-mediated navigation of an active Brownian searcher in a homogeneous topography

Gourab Kumar Sar, Arnob Ray, Dibakar Ghosh, Chittaranjan Hens and Arnab Pal\*

### 4519



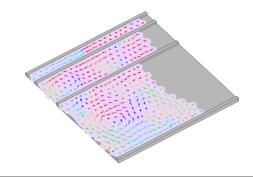
# Effect of poly[oligo(ethylene glycol) methyl ether methacrylate] side chain length on the brush swelling behavior in A/B/A-B ternary blends with polystyrene

Caini Zheng, Bo Zhang, Frank S. Bates\* and Timothy P. Lodge\*

#### 4526

## Size-induced motion mode transitions in collective cell invasion toward free spaces

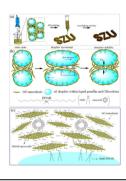
Bi-Cong Wang, Yuan Lin and Guang-Kui Xu\*



### 4536

## Rheology of graphene oxide stabilized Pickering emulsions

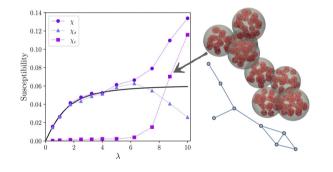
Shu-Ming Cui, Saud Hashmi, Wen-Qiang Li, Stephan Handschuh-Wang, Cheng-Tian Zhu, Shi-Chang Wang, Yan-Fei Huang,\* Guang-Ming Zhu\* and Florian J. Stadler\*



### 4549

## Multicore-based ferrofluids in zero field: initial magnetic susceptibility and self-assembly mechanisms

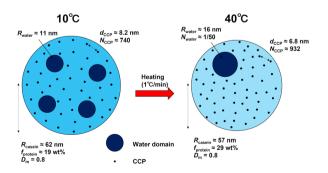
Andrey A. Kuznetsov,\* Ekaterina V. Novak, Elena S. Pyanzina and Sofia S. Kantorovich



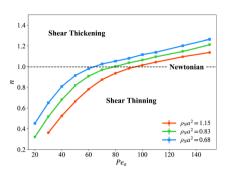
### 4562

The structural changes of a bovine casein micelle during temperature change; in situ observation over a wide spatial scale from nano to micrometer

Hideaki Takagi,\* Tomoki Nakano, Takayoshi Aoki and Morimasa Tanimoto



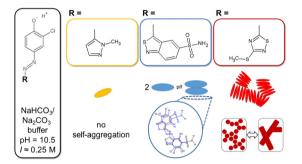
#### 4571



## Motility-induced shear thickening in dense colloidal suspensions

A. Gülce Bayram, Fabian Jan Schwarzendahl, Hartmut Löwen and Luca Biancofiore\*

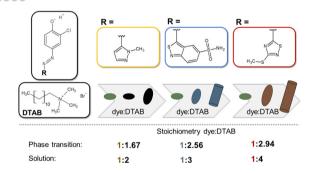
#### 4579



## Comparative study of the self-assembly behaviour of 3-chloro-4-hydroxy-phenylazo dyes

Wenke Müller,\* Ralf Schweins, Bernd Nöcker, Hans Egold and Klaus Huber

## 4588



# Comparative study of the co-assembly behaviour of 3-chloro-4-hydroxy-phenylazo dyes with DTAB

Wenke Müller,\* Ralf Schweins, Bernd Nöcker, Joachim Kohlbrecher, Glen J Smales and Klaus Huber

### CORRECTION

## 4599

## Correction: Concentration and temperature dependent interactions and state diagram of dispersions of copolymer microgels

José Ruiz-Franco, Rodrigo Rivas-Barbosa, Mayra A. Lara-Peña, José R. Villanueva-Valencia, Angel Licea-Claverie, Emanuela Zaccarelli\* and Marco Laurati\*