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(39) 7471-7674 (2023)



Cover

See Meng Wang and Xin Yi, pp. 7494-7501. Image reproduced by permission of Xin Yi from Soft Matter, 2023. 19. 7494.



Inside cover

See Rebecca Betts and Ingo Dierking. pp. 7502-7512. Image reproduced by permission of I. Dierking and R. Betts from Soft Matter, 2023, 19, 7502. With permission: Ingo Dierking, Textures of Liquid Crystals, 2003, Wiley-VCH, Weinheim.

REVIEW

7479

Mechanisms and influencing factors of peptide hydrogel formation and biomedicine applications of hydrogels

Jiahui Zhang, Dongxin Zhao* and Kui Lu*

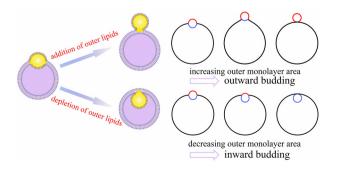


PAPERS

7494

Area difference between monolayers facilitates budding of lipid droplets from vesicles

Meng Wang and Xin Yi*



Editorial Staff

Evecutive Editor

Maria Southall

Deputy Editor Laura Ghandhi

Editorial Production Manager

Chris Goodall

Assistant Editors

Sean Browner, Molly Colgate, Paul Scott, Alison Winder

Editorial Assistant

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 gueries 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,

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

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

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-iournal

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

Roberto Cerbino, University of Vienna, Austria Lorna Dougan, University of Leeds, UK

Ewa Górecka, Warsaw University, Poland 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 Lixin Wu, Jilin University, China Emanuela Zaccarelli, Sapienza University of Rome, Italy Xuehua Zhang, University of Alberta, Canada

Advisory Board

Dave Adams, University of Glasgow, UK Shaun Ahn, Dow, USA Tommy Angelini, University of Florida, USA Markus Antonietti, Max Planck Institute of Colloids

and Interfaces, Germany Omar Azzaroni, UNLP, Argentina Piero Baglioni, University of Florence, Italy Anna Balazs, University of Pittsburgh, USA

Arindam Banerjee, Indian Association for the Cultivation of Science, India

Madivala Basavaraj, Indian Institute of Technology Madras, India

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 Jianbin Huang, Peking University, China 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,

Darrin Pochan, University of Delaware, USA David Quéré, ESPCI, France Sriram Ramaswamy, Indian Institute of Science,

Meital Reches. The Hebrew University of Jerusalem, Israel Aleiandro Rev. 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 Haiime 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 University, China

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.

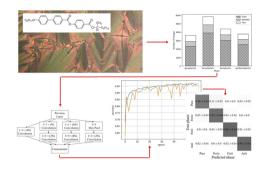
Registered charity number: 207890



7502

Machine learning classification of polar sub-phases in liquid crystal MHPOBC

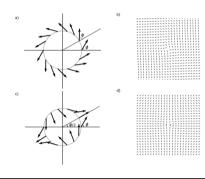
Rebecca Betts and Ingo Dierking*



7513

Spontaneous flows and dynamics of full-integer topological defects in polar active matter

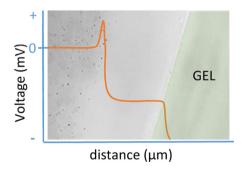
Jonas Rønning, Julian Renaud, Amin Doostmohammadi* and Luiza Angheluta*



7528

Voltage and concentration gradients across membraneless interface generated next to hydrogels: relation to glycocalyx

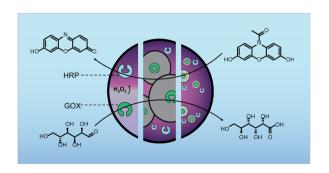
Magdalena Kowacz,* Sinith Withanage and Sebastian Niestępski



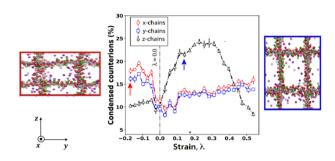
7541

Multicompartment calcium alginate microreactors to reduce substrate inhibition in enzyme cascade reactions

Yongkang Xi, Bradley D. Frank, Apostolos Tatas, Marko Pavlovic and Lukas Zeininger*



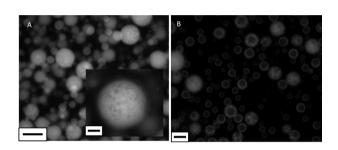
7550



Mechanical deformation affects the counterion condensation in highly-swollen polyelectrolyte hydrogels

Muzaffar Rafique and Aykut Erbaş*

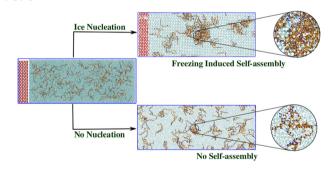
7562



One step generation of single-core double emulsions from polymer-osmose-induced aqueous phase separation in polar oil droplets

Jean-Paul Douliez.* Anais Arlaut, Laure Beven. Anne-Laure Fameau and Arnaud Saint-Jalmes*

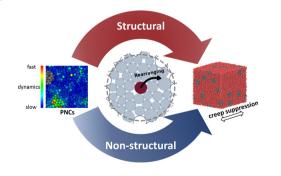
7570



Does freezing induce self-assembly of polymers? A molecular dynamics study

Mangesh Bhendale,* Aindrila Indra* and Jayant K. Singh*

7580



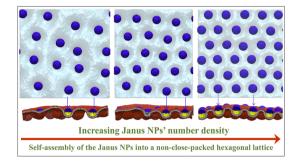
Understanding creep suppression mechanisms in polymer nanocomposites through machine learning

Entao Yang, James F. Pressly, Bharath Natarajan, Robert Colby, Karen I. Winey* and Robert A. Riggleman*

7591

Non-close-packed hexagonal self-assembly of Janus nanoparticles on planar membranes

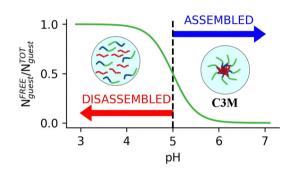
Yu Zhu, Abash Sharma, Eric J. Spangler and Mohamed Laradji*



7602

Theoretical treatment of complex coacervate core micelles: structure and pH-induced disassembly

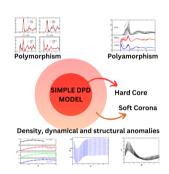
Gabriel Debais, Leandro L. Missoni, Yamila A. Perez Sirkin* and Mario Tagliazucchi*



7613

A DPD model of soft spheres with waterlike anomalies and poly(a)morphism

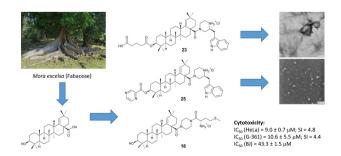
José Rafael Bordin*



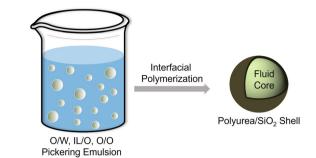
7625

Nano-assembly of cytotoxic amides of moronic and morolic acid

Uladzimir Bildziukevich, Miroslav Šlouf, Lucie Rárová, David Šaman and Zdeněk Wimmer*



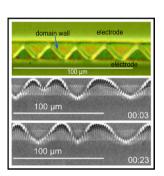
7635



Wettability-tuned silica particles for emulsion-templated microcapsules

Nicholas C. Starvaggi, B. Jack Bradford, Cameron D. L. Taylor and Emily B. Pentzer*

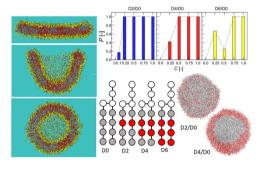
7644



New quasiperiodic structures in nematic liquid crystals

Olha Melnyk, Reed Jones,* Rair Macêdo and Robert E. Camley

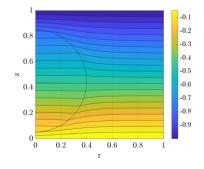
7655



Effects of lipid saturation on bicelle to vesicle transition of a binary phospholipid mixture: a molecular dynamics simulation study

Kenichiro Koshiyama* and Kazuki Nakata

7663



Electrostatic force on a spherical particle confined between two planar surfaces

Zhanwen Wang, Michael J. Miksis and Petia M. Vlahovska*