

Soft Matter

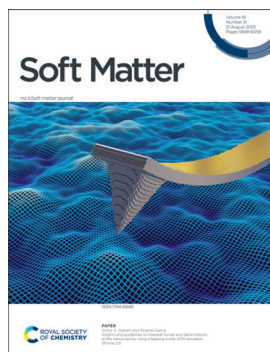
Where physics meets chemistry meets biology for fundamental soft matter research

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(31) 5849-6058 (2023)



Cover

See Victor G. Gisbert and Ricardo Garcia, pp. 5857–5868. Image reproduced by permission of Ricardo Garcia from *Soft Matter*, 2023, 19, 5857.



Inside cover

See Surya Narayana Sangitra and Ravi Kumar Pujala, pp. 5869–5879. Image reproduced by permission of Ravi Kumar Pujala from *Soft Matter*, 2023, 19, 5869.

PAPERS

5857

Insights and guidelines to interpret forces and deformations at the nanoscale by using a tapping mode AFM simulator: dForce 2.0

Victor G. Gisbert and Ricardo Garcia*



5869

Effect of small amounts of akaganeite (β -FeOOH) nanorods on the gelation, phase behaviour and injectability of thermoresponsive Pluronic F127

Surya Narayana Sangitra and Ravi Kumar Pujala*



Editorial Staff

Executive Editor

Maria Southall

Deputy Editor

Laura Ghandhi

Editorial Production Manager

Chris Goodall

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 0WF.

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, Telephone: +44 (0) 207 4378 6556.

Advertisement sales:

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 and reviews.

Editorial Board

Editor-in-Chief

Alfred Crosby, University of Massachusetts Amherst, USA

Associate Editors

Roberto Cerbino, University of Vienna, Austria
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

Editorial Board members

Lorna Dougan, University of Leeds, UK

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 Bruijic, 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 Fakhraei, University of Pennsylvania, 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

Gijze 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 Il, 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, India

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 Pennsylvania, USA

Joakim Stenhammar, Lund University, Sweden

Howard Stone, Princeton University, USA

Hajime Tanaka, University of Tokyo, Japan

Evelyn 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

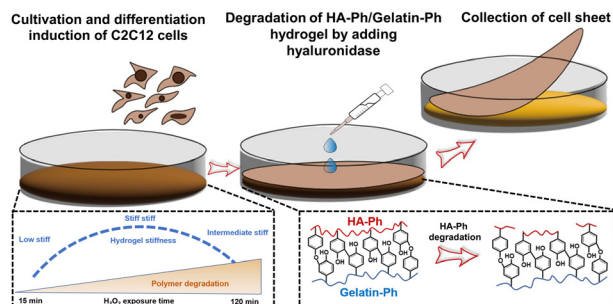


PAPERS

5880

Tuning the crosslinking and degradation of hyaluronic acid/gelatin hydrogels using hydrogen peroxide for muscle cell sheet fabrication

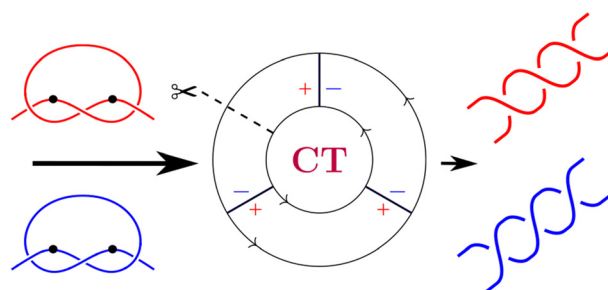
Kelum Chamara Manoj Lakmal Elvitigala, Wildan Mubarak and Shinji Sakai*



5888

Decoding chirality in circuit topology of a self entangled chain through braiding

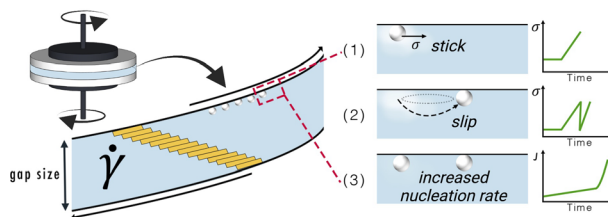
Jonas Berx and Alireza Mashaghi*



5896

The interplay between nucleation and patterning during shear-induced crystallization from solution in a parallel plate geometry

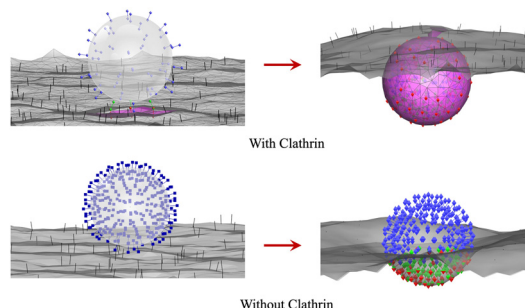
Cedric Devos, Anja Vananroye, Ruth Cardinaels, Christos Xiouras, Tom Van Gerven and Simon Kuhn*



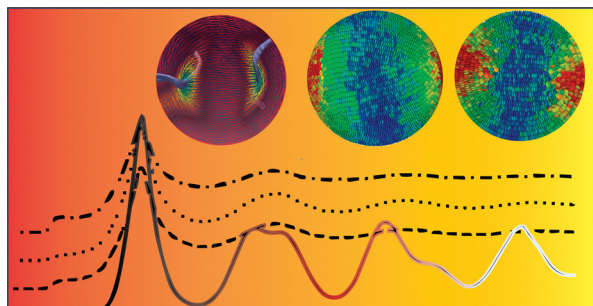
5907

Effects of receptor properties on particle internalization through receptor-mediated endocytosis

Md Muhtasim Billah, Hua Deng, Prashanta Dutta and Jin Liu*



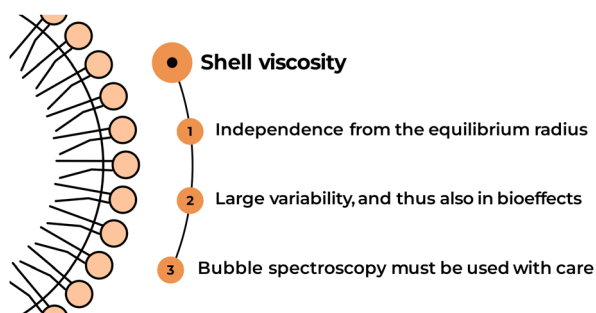
5916



Phase transitions and topological defects in discotic liquid crystal droplets with planar anchoring: a Monte Carlo simulation study

Daniel Salgado-Blanco,* Enrique Díaz-Herrera, José A. Martínez-González and Carlos I. Mendoza

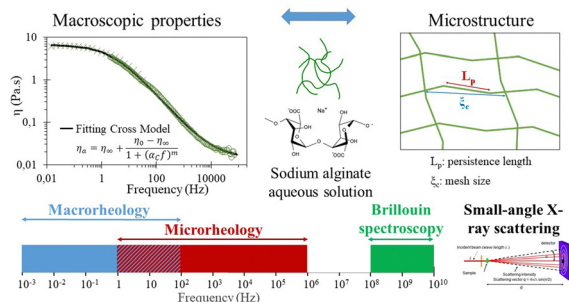
5925



Shell viscosity estimation of lipid-coated microbubbles

Marco Cattaneo* and Outi Supponen

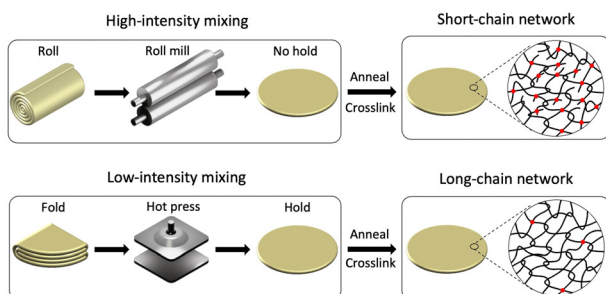
5942



Multiscale investigation of viscoelastic properties of aqueous solutions of sodium alginate and evaluation of their biocompatibility

Alberto Varela-Feijoo, Philippe Djemia, Tetsuharu Narita, Frédéric Pignon, Armelle Baeza-Squiban, Valentina Sirri and Alain Ponton*

5956



Low-intensity mixing process of high molecular weight polymer chains leads to elastomers of long network strands and high fatigue threshold

Xianyang Bao, Guodong Nian, Yakov Kutsovsky, Junsoo Kim, Quan Jiao and Zhigang Suo*

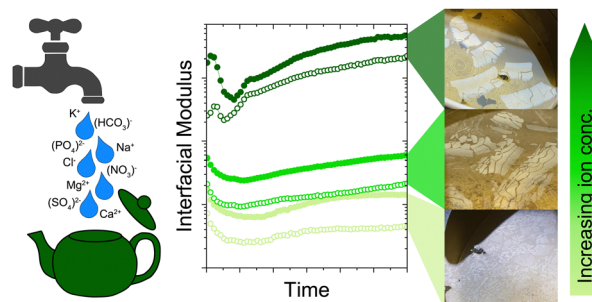


PAPERS

5967

Tea film formation in artificial tap water

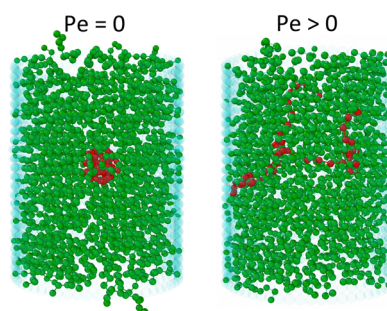
Caroline E. Giacomini*, Rebecca Yun Chen, Erwin Hack and Peter Fischer*



5978

Structure and dynamics of an active polymer chain inside a nanochannel grafted with polymers

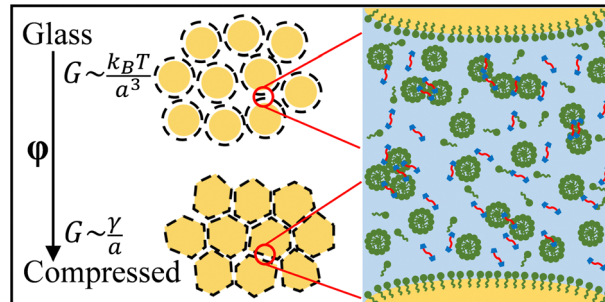
Rajiblochan Sahoo and Rajarshi Chakrabarti*



5989

Glassy and compressed nanoemulsions stabilized with sodium dodecyl sulfate in the presence of poly(ethylene glycol)-diacrylate

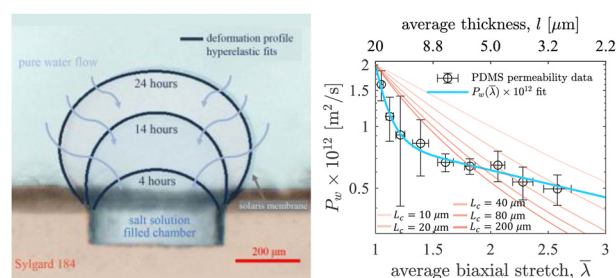
Zahra Abbasian Chaleshtari, Hamed Salimi-Kenari and Reza Foudazi*



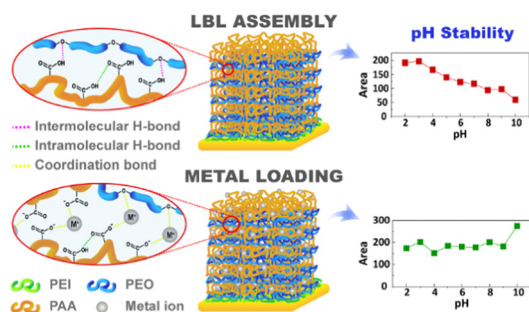
6005

Deformation-dependent polydimethylsiloxane permeability measured using osmotic microactuators

Alexandra R. Spitzer and Shelby B. Hutchens*



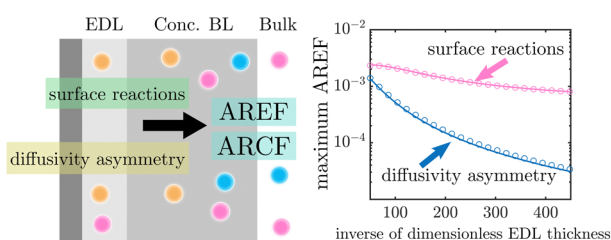
6018



Unexpected enhancement of pH-stability in $\text{Au}^{3+}/\text{Ag}^{+}$ loaded H-bonded layer-by-layer thin films

Nicolás Pomeranec Altieri, Lucy L. Coria-Oriundo, Paula C. Angelomé, Fernando Battaglini, María Luz Martínez Ricci* and Lucila P. Méndez De Leo*

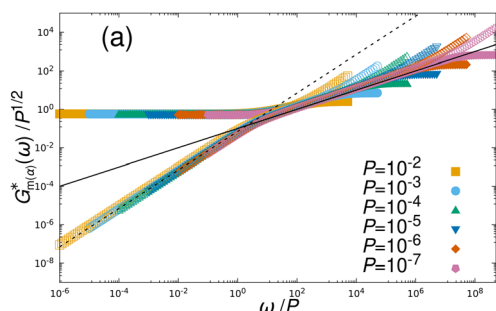
6032



Asymmetric rectified electric and concentration fields in multicomponent electrolytes with surface reactions

Nathan Jarvey, Filipe Henrique and Ankur Gupta*

6046



Microrheology near jamming

Yusuke Hara,* Hideyuki Mizuno and Atsushi Ikeda

