

# Polymer Chemistry

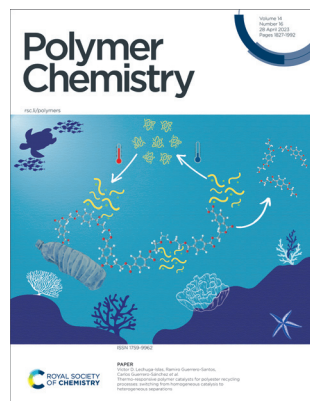
The home for the most innovative and exciting polymer chemistry, with an emphasis on polymer synthesis and applications thereof

[rsc.li/polymers](https://rsc.li/polymers)

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 1759-9962 CODEN PCOHC2 14(16) 1827-1992 (2023)



### Cover

See Víctor D. Lechuga-Islas, Ramiro Guerrero-Santos, Carlos Guerrero-Sánchez *et al.*, pp. 1893–1904.

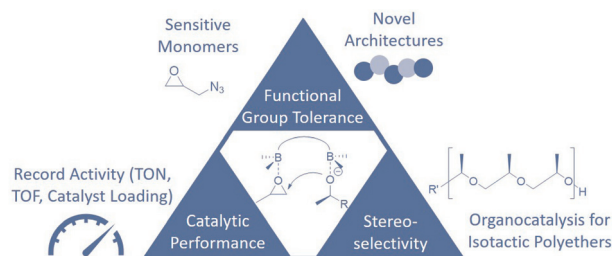
Image reproduced by permission of Víctor D. Lechuga-Islas, Carlos Guerrero-Sánchez, Dulce M. Sánchez-Cerrillo, Steffi Stumpf, Ramiro Guerrero-Santos & Ulrich S. Schubert from *Polym. Chem.*, 2023, **14**, 1893.

## REVIEWS

1834

### Borane catalysis for epoxide (co)polymerization

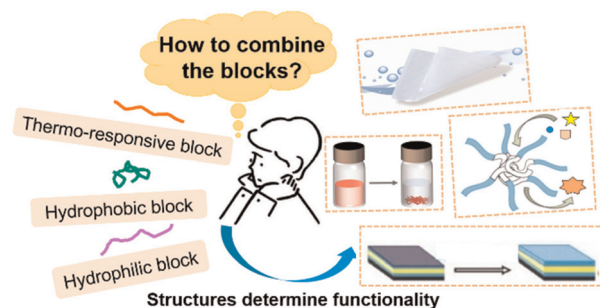
Stefan Naumann



1863

### Thermo-responsive block copolymers: assembly and application

Guangran Shao, Yuan Liu, Rong Cao, Guang Han, Bing Yuan\* and Wangqing Zhang\*



## Editorial Staff

### Executive Editor

Maria Southall

### Deputy Editor

Laura Ghandhi

### Editorial Production Manager

Cara Sutton

### 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

Cara Sutton, Editorial Production Manager in the first instance.

E-mail: [polymers@rsc.org](mailto:polymers@rsc.org)

For pre-submission queries please contact Maria Southall,

Executive Editor. E-mail: [polymers-rsc@rsc.org](mailto:polymers-rsc@rsc.org)

Polymer Chemistry (electronic: ISSN 1759-9962)

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](mailto:orders@rsc.org)

2023 Annual (electronic) subscription price: £2935; \$5014.

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](http://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](mailto:advertising@rsc.org)

For marketing opportunities relating to this journal, contact [marketing@rsc.org](mailto:marketing@rsc.org)

# Polymer Chemistry

[rsc.li/polymers](http://rsc.li/polymers)

The home for the most innovative and exciting polymer chemistry, with an emphasis on polymer synthesis and applications thereof.

## Editorial Board

### Editor-in-Chief

Christopher Barner-Kowollik, Queensland University of Technology, Australia

### Associate Editors

Athina Anastasaki, ETH Zurich, Switzerland

Filip Du Prez, Ghent University, Belgium

Holger Frey, Johannes Gutenberg University Mainz, Germany

Rongrong Hu, South China University of Technology, China

Jeremiah A Johnson, Massachusetts Institute of Technology, USA

Tanja Junkers, Monash University, Australia

Dominik Konkolewicz, Miami University, USA

Zhibo Li, Qingdao University of Science and

Technology, China

Zi-Chen Li, Peking University, China

Emily Pentzer, Texas A&M University, USA

Sébastien Perrier, University of Warwick, UK

## Advisory Board

Steven Ames, University of Sheffield, UK

Remzi Becer, University of Warwick, UK

Matthew Becker, Duke University, USA

Erik Berda, University of New Hampshire, USA

Kerstin Blank, Max Planck Institute of Colloids and Interfaces, Germany

Eva Blasco, Heidelberg University, Germany

James Blinco, Queensland University of Technology, Australia

Chris Bowman, University of Colorado, USA

Cyrille Boyer, University of New South Wales, Australia

Neil Cameron, Monash University, Australia

Luis Campos, Columbia University, USA

Changle Chen, University of Science and Technology of China, China

Mao Chen, Fudan University, China

Xuesi Chen, Chinese Academy of Sciences, China

Yoshiki Chujo, Kyoto University, Japan

Franck D'Agosto, CPE Lyon, France

Priyadarsi De, Indian Institute of Science Education and Research Kolkata, India

Guillaume Delaitte, University of Wuppertal, Germany

Dagmar D'hooge, University of Ghent, Belgium

Elizabeth Elacqua, Pennsylvania State University, USA

Brett P Fors, Cornell University, USA

Theoni Georgiou, Imperial College London, UK

Didier Gigmes, Aix-Marseille Université, CNRS, France

Atsushi Goto, Nanyang Technological University, Singapore

Sophie Guillaume, Institut des Sciences Chimiques de Rennes, France

Dave Haddleton, University of Warwick, UK

Nikos Hadjichristidis, King Abdullah University of Science and Technology, Saudi Arabia

Yanchun Han, Chinese Academy of Sciences, China

Eva Marie Harth, University of Houston, USA

Simon Harrison, CNRS - University of Toulouse, France

Laura Hartmann, Heinrich Heine University Düsseldorf, Germany

Fiona Hatton, Loughborough University, UK

Andrew B. Holmes, University of Melbourne, Australia

Richard Hoogenboom, University of Ghent, Belgium

Steve Howdle, University of Nottingham, UK

Feihe Huang, Zhejiang University, China

Toyoji Kakuchi, Changchun University of Science and Technology, China

Julia Kalow, Northwestern University, USA

Masami Kamigaito, Nagoya University, Japan

Justin Kennemur, Florida State University, USA

Christopher Kloxin, University of Delaware, USA

Jacques Lalevé, Institut de Science des Matériaux de Mulhouse, France

Sébastien Lecommandoux, ENSCPB, University of Bordeaux, France

Muriel Lansalot, Université Lyon, France

Sébastien Lecommandoux, ENSCPB, University of Bordeaux, France

Rachel Letteri, University of Virginia, USA

Guey-Sheng Liou, National Taiwan University, Taiwan

Guoliang Liu, Virginia Tech, USA

Shiyong Liu, University of Science & Technology, China

Timothy Long, Arizona State University, USA

Ian Manners, University of Victoria, Canada

John Matson, Virginia Tech, USA

Markus Mueller, University of Sydney, Australia

Ravin Narain, University of Alberta, Canada

Julien Nicolas, University Paris-Sud, France

Kyoko Nozaki, University of Tokyo, Japan

Rachel O'Reilly, University of Warwick, UK

Makoto Ouchi, Kyoto University, Japan

Derek Patton, University of Southern Mississippi, USA

Theresa Reineke, University of Minnesota, USA

Megan Robertson, University of Houston, USA

Amitav Sanyal, Bogazici University, Turkey

Felix Schacher, Friedrich-Schiller-University Jena, Germany

Helmut Schlaad, University of Potsdam, Germany

Ellen Sletten, University of California, Los Angeles, USA

Martina Stenzel, University of New South Wales, Australia

Molly Stevens, Imperial College London, UK

Natalie Stingelin, Georgia Institute of Technology, USA

Ben Zhong Tang, HKUST, Hong Kong, China

Lei Tao, Tsinghua University, China

Patrick Theato, KIT, Germany

Maria Vamvakaki, FORTH-IESL, Greece

Jan van Hest, Eindhoven University of Technology, The Netherlands

Kelly Velonia, University of Crete, Greece

Maria J. Vicent, CIPF, Spain

Brigitte Voit, Leibniz Institute of Polymer Design, Germany

Marcus Weck, NYU, USA

Charlotte Williams, University of Oxford, UK

Frederik Wurm, Max-Planck-Institut für Polymerforschung, Germany

Yusuf Yagci, Istanbul Technical University, Turkey

Naoko Yoshie, University of Tokyo, Japan

Wei You, University of North Carolina at Chapel Hill, USA

Xi Zhang, Tsinghua University, China

## Information for Authors

Full details on how to submit material for publication in Polymer Chemistry 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/polymers](http://rsc.li/polymers) Submissions: The journal welcomes submissions of manuscripts for publication as Full Papers, Communications, Perspectives and Reviews. Full Papers and Communications should describe original work of high quality and impact.

Colour figures are reproduced free of charge. 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

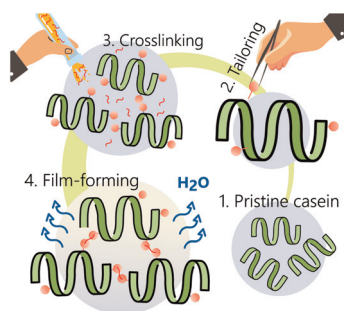


## COMMUNICATIONS

1881

### Functionalization of casein and its use for preparing self-crosslinking protein-based materials

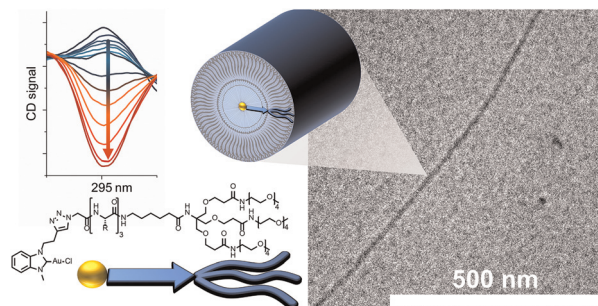
Luisa G. Cencha, Mariana Allasia, Victoria A. Vaillard, Pablo D. Nieres, Carlos A. Córdoba, Luis M. Gugliotta, Santiago E. Vaillard and Roque J. Minari\*



1888

### Impact of sample history and solvent effects on pathway control in the supramolecular polymerisation of Au(I)-metallopeptide amphiphiles

Marius Thomas, Vanessa Lewe, Jonas Kölsch, Moritz Urschbach, Jessica Erlenbusch, Oliver Sven Stach and Pol Besenius\*

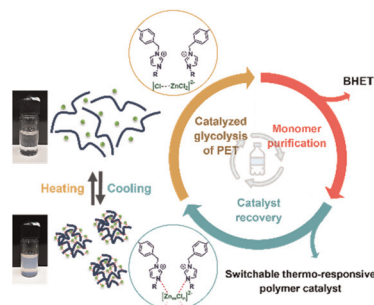


## PAPERS

1893

### Thermo-responsive polymer catalysts for polyester recycling processes: switching from homogeneous catalysis to heterogeneous separations

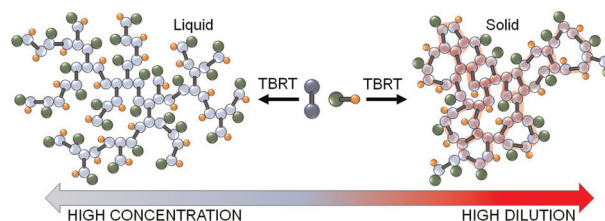
Víctor D. Lechuga-Islas,\* Dulce M. Sánchez-Cerrillo, Steffi Stumpf, Ramiro Guerrero-Santos,\* Ulrich S. Schubert and Carlos Guerrero-Sánchez\*



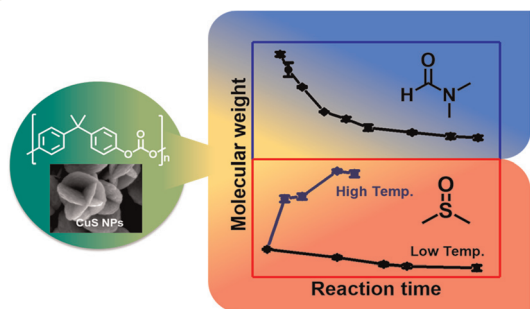
1905

### Utilising the effect of reaction concentration to tune the physical properties of hyperbranched polymers synthesised using transfer-dominated branching radical telomerisation (TBRT)

Savannah R. Cassin, Stephen Wright, Samuel Mckeating, Oliver B. Penrhyn-Lowe, Sean Flynn, Sarah Lomas, Pierre Chambon and Steve P. Rannard\*



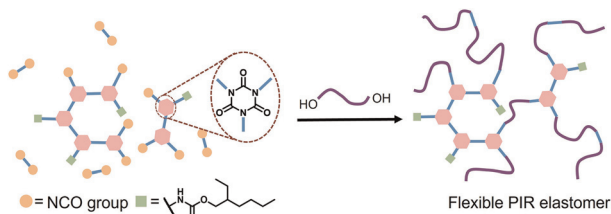
1915



### Solvent-induced competing processes in polycarbonate degradation: depolymerization, chain scission, and branching/crosslinking

Mengqi Sun, Zhen Xu, Nuwayo Eric Munyaneza, Yue Zhang, Carlos Posada and Guoliang Liu\*

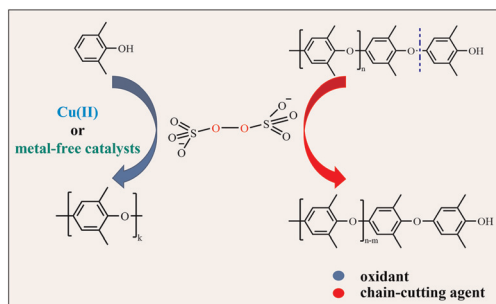
1923



### Synthesis of polyisocyanurate prepolymer and the resulting flexible elastomers with tunable mechanical properties

Yunfei Guo, Julian Kleemann, Stefan Bokern, Andre Kamm, Rint P. Sijbesma\* and Željko Tomović\*

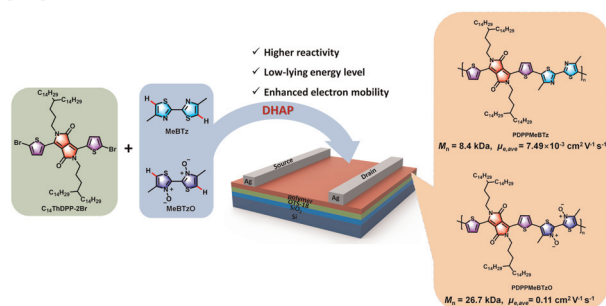
1933



### Chemical and physical properties of low-molecular-weight poly(2,6-dimethyl-1,4-phenylene oxide) (LMW-PPO) synthesized by peroxydisulfate and metal/non-metal catalysts

Yi-Fang Lu, Song-Hai Wu, Cong Wang, Yong Liu, Fu-Gen Huang, Bao-Dong Song\* and Xu Han\*

1945



### An N-oxide containing conjugated semiconducting polymer with enhanced electron mobility via direct (hetero)arylation polymerization

Xiandong He, Feng Ye, Jia-Cheng Guo, Wenju Chang, Bingxu Ma, Riqing Ding, Sijing Wang, Yong Liang, Dehua Hu,\* Zi-Hao Guo\* and Yuguang Ma

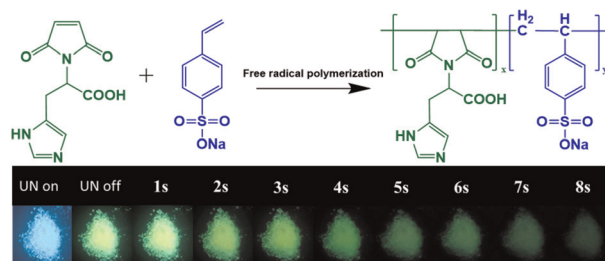


## PAPERS

1954

### Water-soluble polymers with aggregation-induced emission and ultra-long room temperature phosphorescence

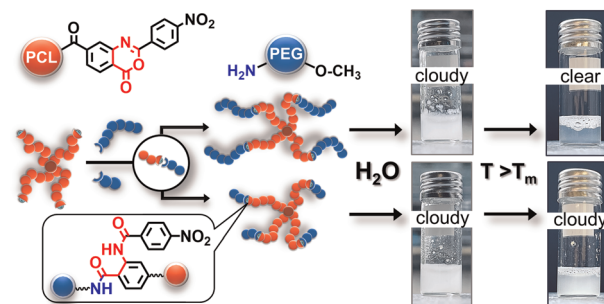
Qinbin Zhang, Chuan Huang, Yichuan Zhang\* and Mingming Guo\*



1965

### Amphiphilic tetra-PCL-*b*-PEG star block copolymers using benzoxazinone-based linking groups

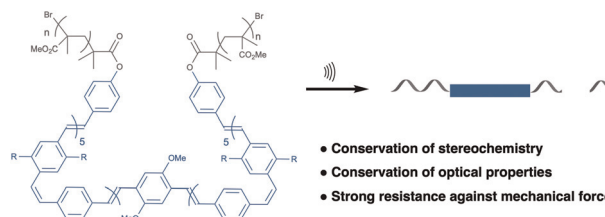
Carolyn Bunk, Hartmut Komber, Michael Lang,\* Nora Fribicz, Martin Geisler, Petr Formanek, Lothar Jakisch, Sebastian Seiffert, Brigitte Voit and Frank Böhme\*



1978

### Mechanical stability of *cis*, *trans*-poly(*p*-phenylene vinylenes)

Yurachat Janpatompong, Kamil Suwada, Michael L. Turner\* and Guillaume De Bo\*



1983

### Ethylene polymerization using heterogeneous multinuclear nickel catalysts supported by a crosslinked alpha diimine ligand network

Keaton M. Turney, Parin Kaewdeewong and James M. Eagan\*

