

Polymer Chemistry

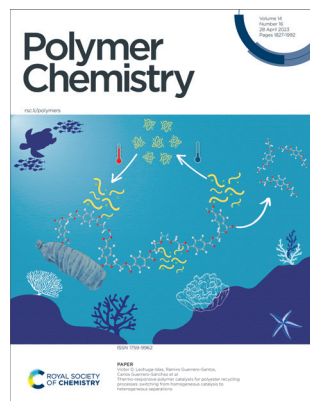
The home for the most innovative and exciting polymer chemistry, with an emphasis on polymer synthesis and applications thereof

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.

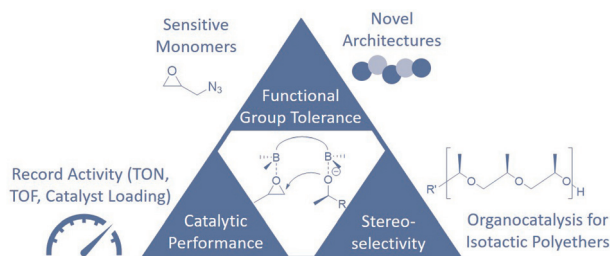
Image reproduced by permission of Víctor D. Lechuga-Islas, Carlos Guerrero-Sánchez, Dulce M. Sánchez-Cerrillo, Steffi Stumpf, Ramiro Guerrero-Santos & Ulrich S. Schubert from *Polym. Chem.*, 2023, **14**, 1893.

REVIEWS

1834

Borane catalysis for epoxide (co)polymerization

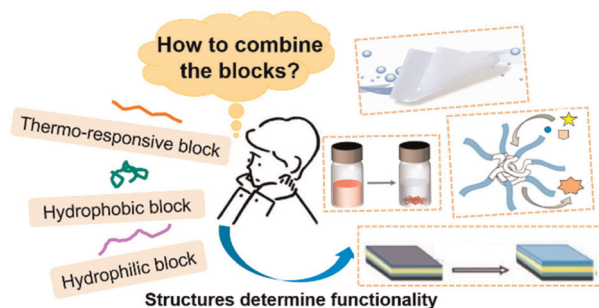
Stefan Naumann



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

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

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

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

Polymer Chemistry

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 Armes, 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 Delaitre, 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
Toyoyi 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 Lalevée, Institut de Science des Matériaux
de Mulhouse, 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 Muellner, 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/](http://rsc.li/polymers)
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

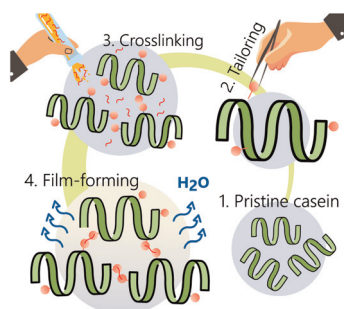


COMMUNICATIONS

1881

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

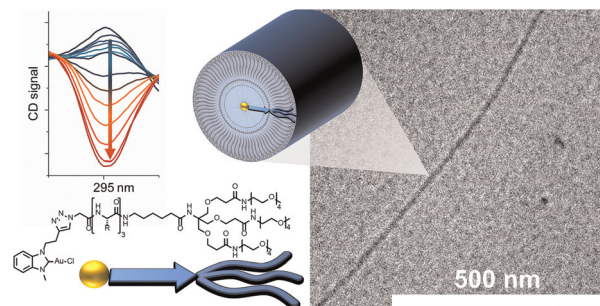
Luisa G. Cenchá, Mariana Allasia, Victoria A. Vaillard, Pablo D. Nieres, Carlos A. Córdoba, Luis M. Gugliotta, Santiago E. Vaillard and Roque J. Minari*



1888

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

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

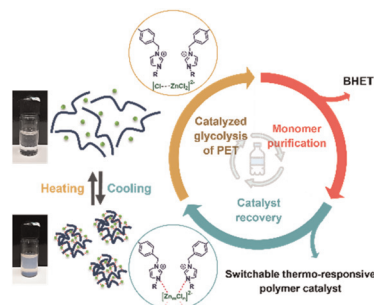


PAPERS

1893

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

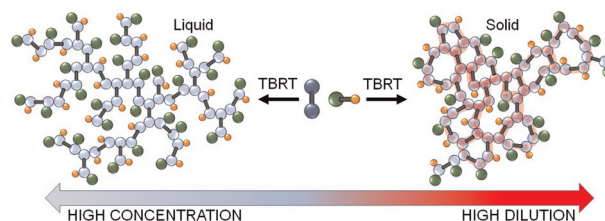
Víctor D. Lechuga-Islas,* Dulce M. Sánchez-Cerrillo, Steffi Stumpf, Ramiro Guerrero-Santos,* Ulrich S. Schubert and Carlos Guerrero-Sánchez*



1905

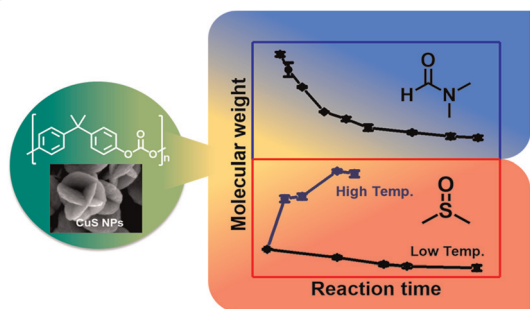
Utilising the effect of reaction concentration to tune the physical properties of hyperbranched polymers synthesised using transfer-dominated branching radical telomerisation (TBRT)

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



PAPERS

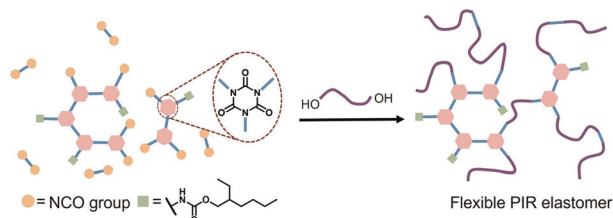
1915



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*

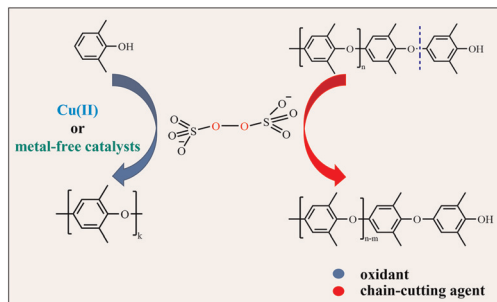
1923



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*

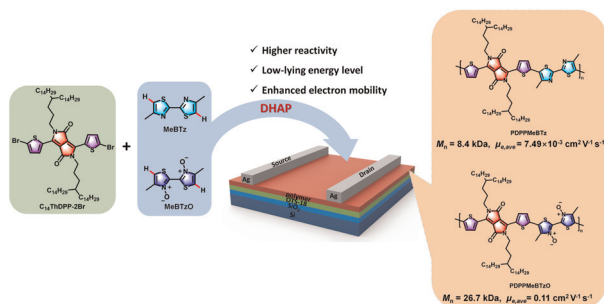
1933



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

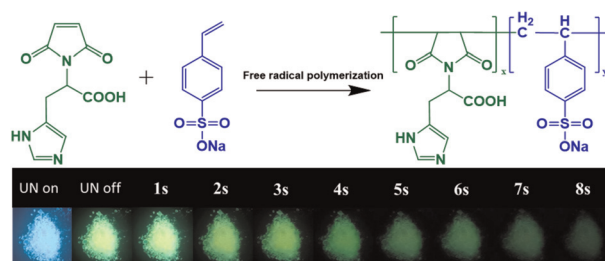


PAPERS

1954

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

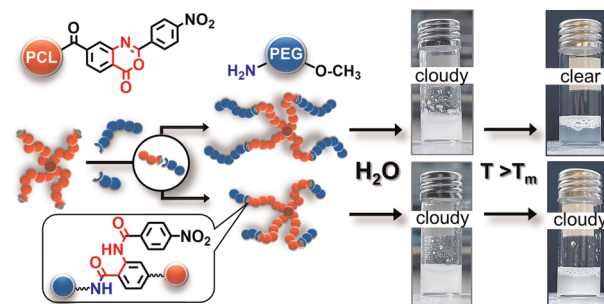
Qinbin Zhang, Chuan Huang, Yichuan Zhang* and Mingming Guo*



1965

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

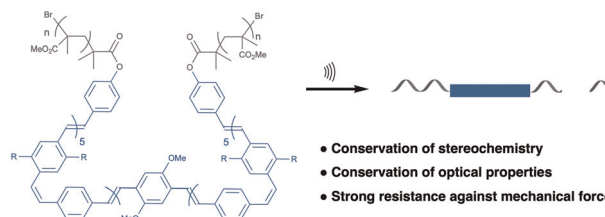
Carolyn Bunk, Hartmut Komber, Michael Lang,* Nora Fribicz, Martin Geisler, Petr Formanek, Lothar Jakisch, Sebastian Seiffert, Brigitte Voit and Frank Böhme*



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*

