

Polymer Chemistry

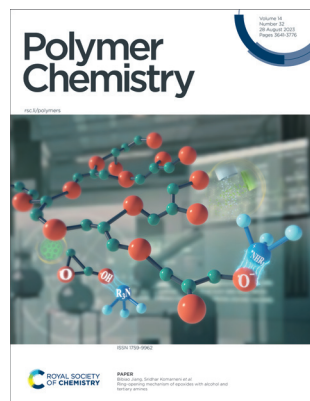
The home for the most innovative and exciting polymer chemistry, with an emphasis on polymer synthesis and applications thereof

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(32) 3641–3776 (2023)



Cover

See Bibiao Jiang,
Sridhar Komarneni *et al.*,
pp. 3679–3685.

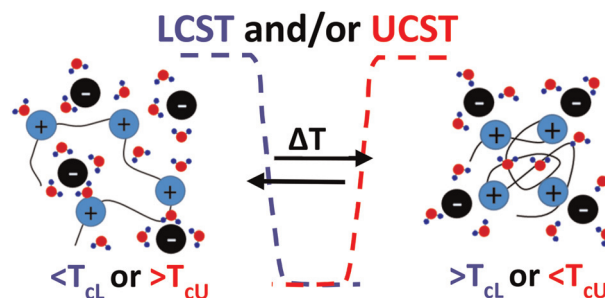
Image reproduced by
permission of Bibiao Jiang
from *Polym. Chem.*, 2023,
14, 3679.

REVIEW

3647

Thermoresponsive polycations

Vikram Baddam and Heikki Tenhu*



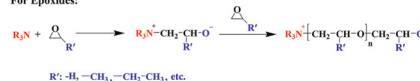
PAPERS

3679

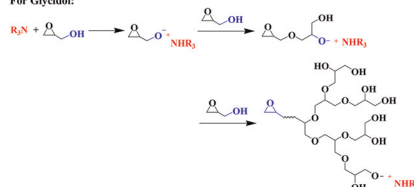
Ring-opening mechanism of epoxides with alcohol and tertiary amines

Yongzhuang Du, Xiaoqiang Xue, Qimin Jiang,
Wenyan Huang, Hongjun Yang, Li Jiang, Bibiao Jiang*
and Sridhar Komarneni*

For Epoxides:



For Glycidol:



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

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 Lalevée, Institut de Science des Matériaux

de Mulhouse, France

Sébastien Lecommandoux, ENSCPB, University of

Polymer Research, Germany

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 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

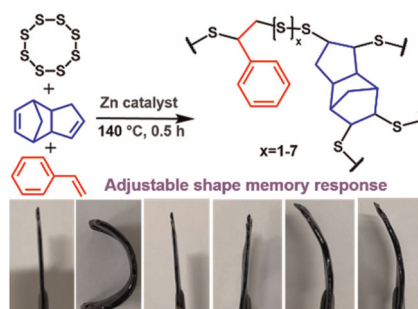


PAPERS

3686

Sulfur-rich polymers with heating/UV light-responsive shape memory and temperature-modulated self-healing

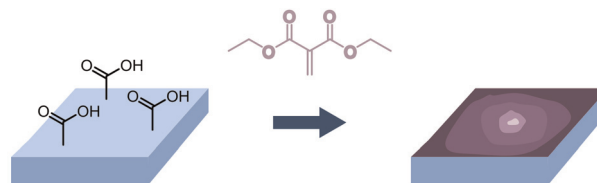
Zhao Yang, Peiyao Yan, Xiaohu Li, Congcong Miao, Shanshan (Diana) Cai, Weigang Ji, Mengyuan Song, Liam J. Dodd, Xiaofeng Wu,* Tom Hasell* and Pengfei Song*



3695

Anionic polymerization and transport of diethyl methylenemalonate on polyolefin copolymer surfaces

Kelsi M. S. Rehmann, John Klier and Jessica D. Schiffman*

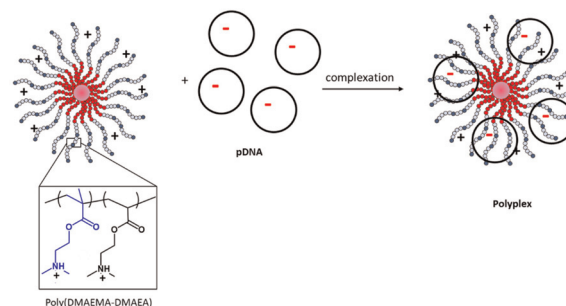


- Initiator concentration impacts monomer transport rate
- Grafting from substrates with minimal surface treatment

3707

Cationic star copolymers obtained by the arm first approach for gene transfection

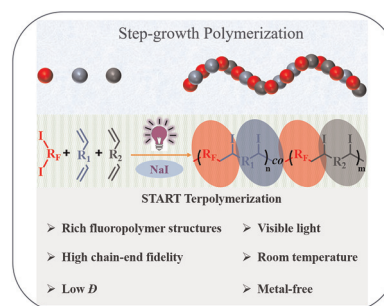
Fannie Burgevin, Alexia Hapeshi, Ji-Inn Song, Marta Omedes-Pujol, Annette Christie, Christopher Lindsay and Sébastien Perrier*



3718

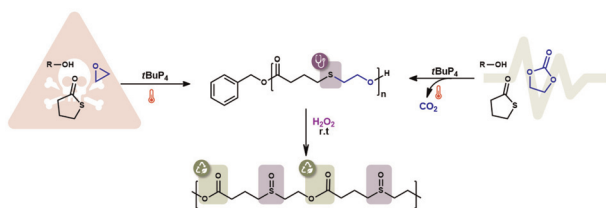
Visible-light mediated synthesis of main-chain-type semifluorinated alternating terpolymers by NaI catalyzed START polymerization

Chaojie Li, Jiannan Cheng, Yi Zhang, Qing Yu, Zhiru Yuan, Weiwei He,* Xiaoguang Bao, Lifan Zhang* and Zhenping Cheng*



PAPERS

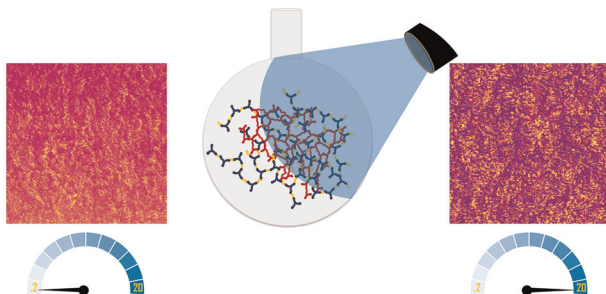
3729



γ-Thiobutyrolactone – ethylene carbonate decarboxylative copolymerization, an original pathway to prepare aliphatic oxidizable poly(γ-thioether ester)

Emma Mongkhoun, Philippe Guégan and Nicolas Illy*

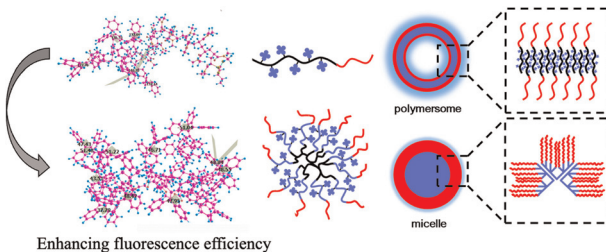
3739



CuAAC–methacrylate interpenetrating polymer network (IPN) properties modulated by visible-light photoinitiation

Mukund Kabra and Christopher J. Kloxin*

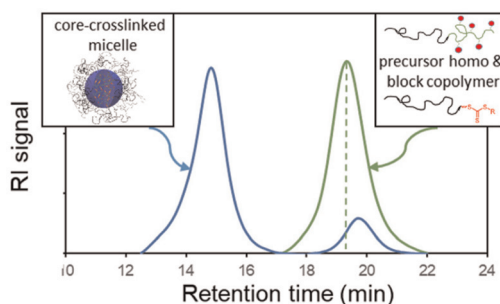
3749



Investigating AIE behaviors of amphiphilic AIEgen-based polymers through self-assembly architectures and hydrophobic core arrangements

Liang Wang, Ghada E. Khedr, Lei Luo, Shiling Zhang, Zhiying Li, Shanmeng Lin, Jinyan Luo, Qi Xing* and Jin Geng*

3761



Synthesis of redox-responsive core–shell nanoparticles: insights into core-crosslinking efficiency

Yannik Olszowy, Janick Wesselmann, Shenja Fabienne Over, Florian Pätzold and Ralf Weberskirch*

