

Polymer Chemistry

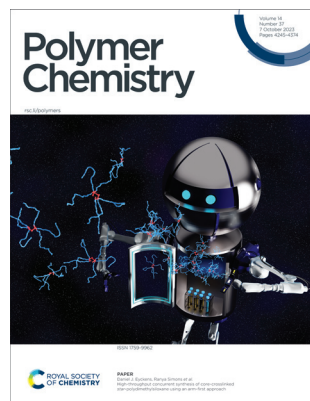
The home for the most innovative and exciting polymer chemistry, with an emphasis on polymer synthesis and applications thereof

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(37) 4245-4374 (2023)



Cover

See Daniel J. Eyckens, Ranya Simons *et al.*, pp. 4282–4293.

Image reproduced by permission of Daniel J. Eyckens from *Polym. Chem.*, 2023, **14**, 4282.

EDITORIAL

4252

Introduction to Chalcogen-containing polymers

Justin M. Chalker,* Rongrong Hu* and Jeffrey Pyun*

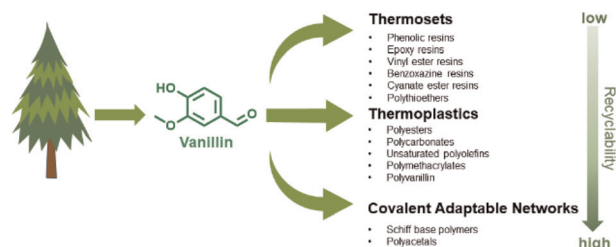


REVIEW

4255

From vanillin to biobased aromatic polymers

Hongru Qiang, Jiewen Wang, Hengxu Liu and Yunqing Zhu*



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 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
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 Lalevé, 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
Elen 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 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

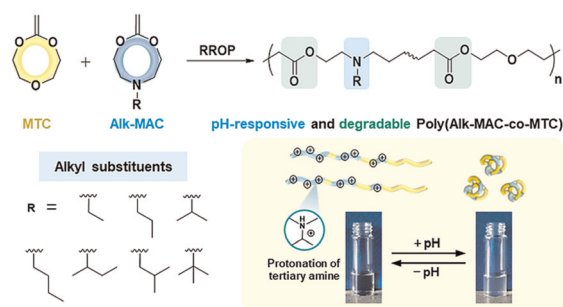


COMMUNICATION

4275

Amine-bearing cyclic ketene acetals for pH-responsive and degradable polyesters through radical ring-opening polymerisation

Yiyi Deng, Anaïs Frezel, Fabian Mehner, Peter Friedel and Jens Gaitzsch*

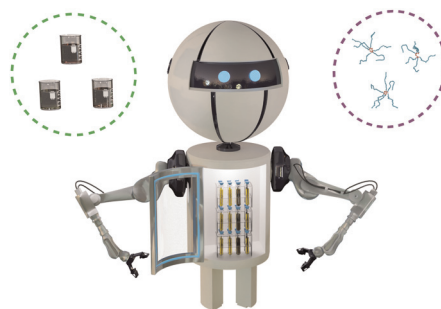


PAPERS

4282

High-throughput concurrent synthesis of core-crosslinked star-polydimethylsiloxane using an arm-first approach

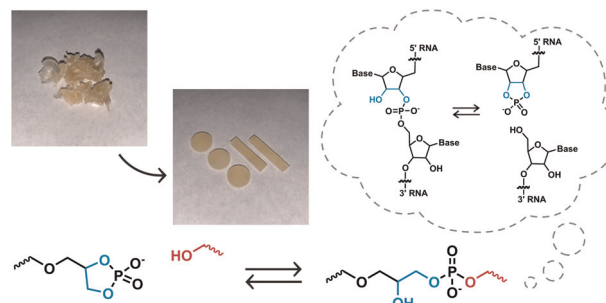
Daniel J. Eyckens,* Shaun Howard, Graeme Moad, Benjamin W. Muir, Almar Postma and Ranya Simons*



4294

RNA-inspired phosphate diester dynamic covalent networks

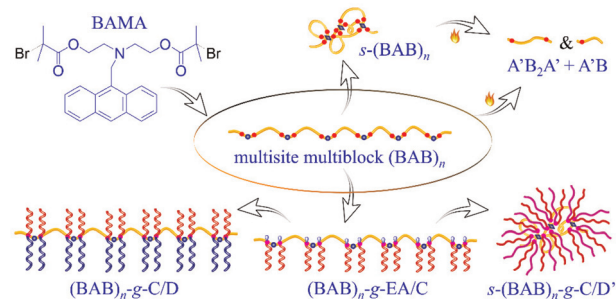
Roy Wink, Soumabrata Majumdar, Rolf A. T. M. van Benthem, Johan P. A. Heuts* and Rint P. Sijbesma*



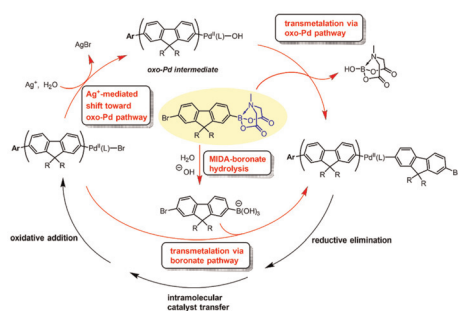
4303

Cascade synthesis of architecture-transformable thermo-labile multisite multiblock copolymers

Lu Lian, Jiaman Hu, Yong Lin and Youliang Zhao*



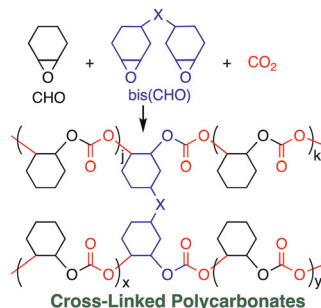
4319



Suzuki–Miyaura catalyst-transfer polymerization: new mechanistic insights

Mitchell T. Howell, Peter Kei, Maksim V. Anokhin, Yaroslav Losovyj, Frank R. Fronczek and Evgueni E. Nesterov*

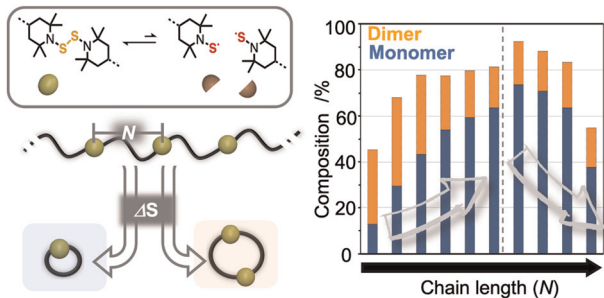
4338



Catalytic synthesis and physical properties of CO₂-based cross-linked poly(cyclohexene carbonate)s

Chihiro Maeda,* Kenta Kawabata, Kaito Niki, Yuma Sako, Takumi Okihara* and Tadashi Ema*

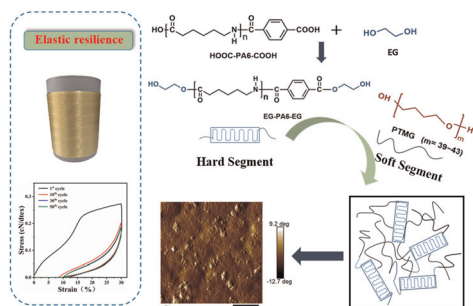
4344



Ring-chain equilibria of dynamic macrocycles with a bis(hindered amino)disulfide linker

Rikito Takashima, Daisuke Aoki,* Shigeki Kuwata and Hideyuki Otsuka*

4352



Flexible preparation of PA6-based thermoplastic elastomer filaments with enhanced elasticity, melt spinnability and transparency enabled by high-molecular-weight soft segments

YaLi Liu, Run Zhao, Yuan Liu, Xueli Wang, Dequn Wu, Lifang Liu, Jianyong Yu, Faxue Li and Ruchao Yuan*



4362

Synthesis of hypercrosslinked polymers with a spherical shell structure for highly effective cycloaddition of CO₂ under ambient conditions

Shuqing Li, Zhen Zhan, Xiaoyan Wang* and Bien Tan*

