

# Polymer Chemistry

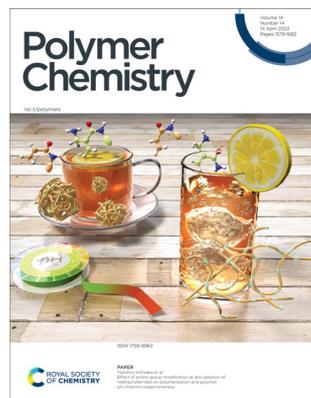
The home for the most innovative and exciting polymer chemistry, with an emphasis on polymer synthesis and applications thereof

[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(14) 1579-1682 (2023)



### Cover

See Yasuhiro Kohsaka *et al.*, pp. 1585–1590.

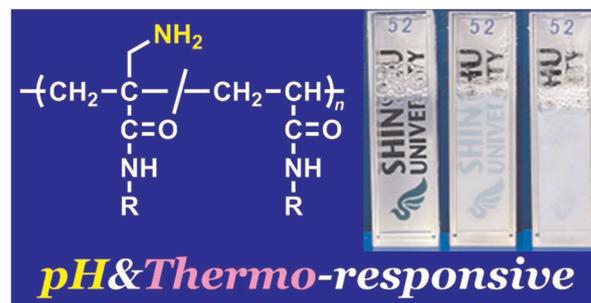
Image reproduced by permission of Yasuhiro Kohsaka from *Polym. Chem.*, 2023, **14**, 1585.

## PAPERS

1585

### Effect of amino group modification at allyl position of methacrylamides on polymerization and polymer pH-/thermo-responsiveness

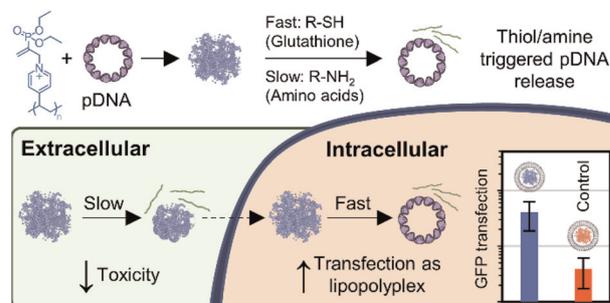
Yasuhiro Kohsaka,\* Nyamdolgor Chinbat, Kei-ichiro Ito and Yosuke Akae



1591

### Nucleophile responsive charge-reversing polycations for pDNA transfection

Reece W. Lewis,\* Aswin Muralidharan, Benjamin Klemm, Pouyan E. Boukany and Rienk Eelkema\*



## 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 pre-submission queries, 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 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](http://rsc.li/polymers). 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

1602

### Performant flexible luminescent solar concentrators of phenylpolysiloxanes crosslinked with perylene bisimide fluorophores

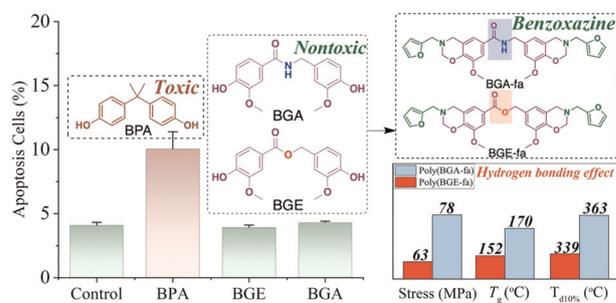
Elisa Della Latta, Francesca Sabatini, Cosimo Micheletti, Marco Carlotti, Francesca Martini,\* Francesca Nardelli, Antonella Battisti, Ilaria Degano, Marco Geppi, Andrea Pucci,\* Svenja Pohl and Guido Kickelbick



1613

### Synthesis of a renewable bisguaiacol amide and its hydrogen bonding effect on enhancing polybenzoxazine performance

Haoran Sun, Junyi Jiang, Yanglei Zheng, Shuangfei Xiang, Shujun Zhao, Feiya Fu and Xiangdong Liu\*



1622

### A Predictive machine-learning model for propagation rate coefficients in radical polymerization

Emma Van de Reydt, Noam Marom, James Saunderson, Mario Boley and Tanja Junkers\*



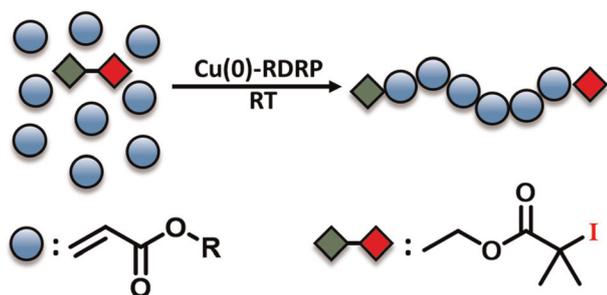
1630

### Alkali metal carbonate catalyzed copolymerization of anhydrides and epoxides: a simple, efficient and versatile approach to well-defined alternating polyesters

Hongyan Xie, Lanlan Zheng, Jiabing Feng, Xinyu Wang, Suping Kuang, Li Zhou, Jia Jiang, Yaling Xu, Yan Zhao and Zhiguang Xu\*



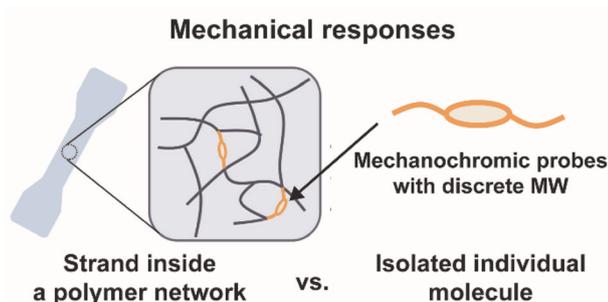
1639



### Cu(0)-RDRP of acrylates using an alkyl iodide initiator

Kostas Parkatzidis, Leonardo de Haro Amez, Nghia P. Truong and Athina Anastasaki\*

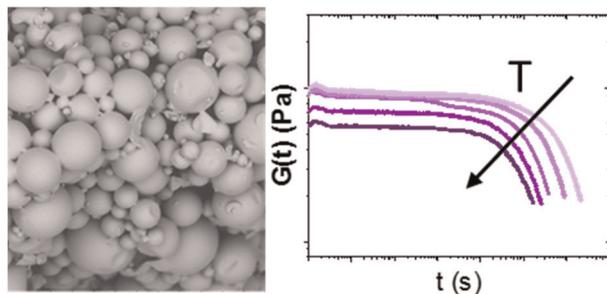
1646



### Effect of strand molecular length on mechanochemical transduction in elastomers probed with uniform force sensors

Tetsu Ouchi, Wencong Wang, Brooke E. Silverstein, Jeremiah A. Johnson\* and Stephen L. Craig\*

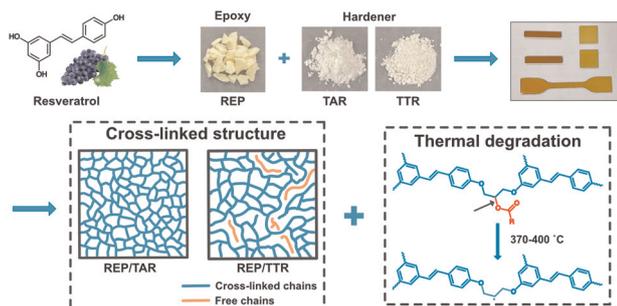
1656



### Scalable synthesis of methacrylate-based vitrimer powders by suspension polymerization

Laura Ballester-Bayarri, Elodie Limousin, Mercedes Fernández, Robert Aguirresarobe\* and Nicholas Ballard\*

1665



### Investigation on the properties and structures of resveratrol-derived epoxy thermosets cured with an active ester

Jiaming Liu, Xiaohong Liu, Xiaohua Cui, Jingjing Qin, Mengqin Wu, Lifu Fu, Min Shi, Dingsong Wang and Liyan Liang\*

