

# RSC

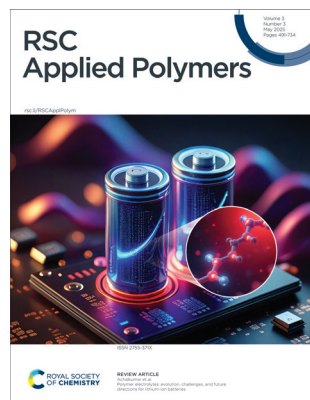
## Applied Polymers

rsc.li/rscapplpolym

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

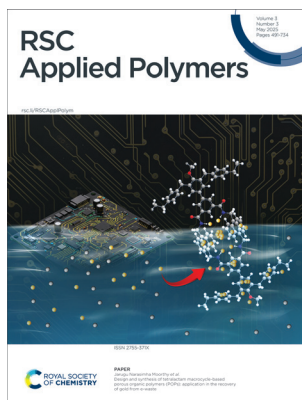
eISSN 2755-371X CODEN RAPSBD 3(3) 491–734 (2025)



#### Cover

See Achalkumar *et al.*, pp. 499–531.

Image reproduced by permission of Muthukumar P. from *RSC Appl. Polym.*, 2025, **3**, 499.



#### Inside cover

See Jarugu Narasimha Moorthy *et al.*, pp. 603–612.

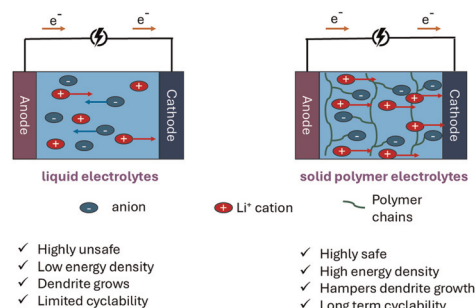
Image reproduced by permission of J. Narasimha Moorthy from *RSC Appl. Polym.*, 2025, **3**, 603.

### REVIEWS

499

#### Polymer electrolytes: evolution, challenges, and future directions for lithium-ion batteries

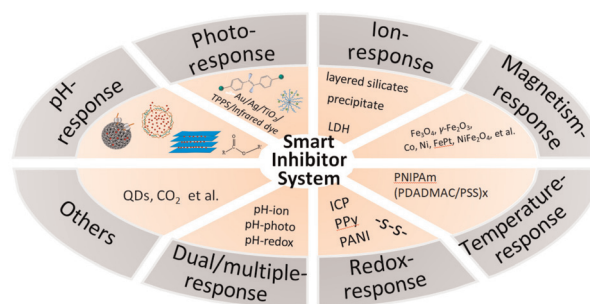
Ram Prasanth S., Varatharajan Prasannavenkadesan, Vimal Katiyar and Ammathnadu Sudhakar Achalkumar\*



532

#### Smart inhibitor systems towards anti-corrosion: design and applications

Danping Li, Ziwen Zhang, Bilegsaikhan Sukhbat, Xuejie Wang, Xue Zhang, Jing Yan,\* Junping Zhang, Qiuyu Zhang, Yan Li, Hao Wang and Yi Yan\*





# EES Solar

## Exceptional research on solar energy and photovoltaics

Part of the EES family

**Join  
in** | Publish with us  
[rsc.li/EESolar](https://rsc.li/EESolar)

Registered charity number: 207890



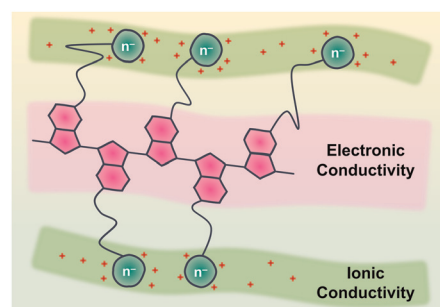


## REVIEWS

549

## Recent material development and applications of conjugated polyelectrolytes by leveraging electronic and ionic transport properties

Chibin Zhang, Liang Yao, Mingrui Pu\* and Cheng Zhou\*



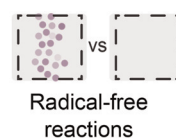
## PERSPECTIVE

574

## Advances in vat photopolymerization: early-career researchers shine light on a path forward

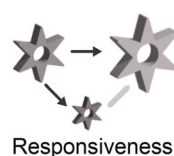
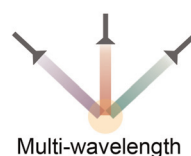
Abhishek P. Dhand,\* Ren H. Bean, Viviane Chiaradia, Alex J. Comisso, Dalia Dranseike, Hayden E. Fowler, Julia M. Fraser, Holden Howard, Takashi Kaneko, Ji-Won Kim, Jason M. Kronenfeld, Keldy S. Mason, Connor J. O'Dea, Fred Pashley-Johnson, Dominique H. Porcincula, Maddison I. Segal, Siwei Yu and Max A. Saccone\*

## Novel Chemistries



Sustainable/bio-based resins

## Novel Processes

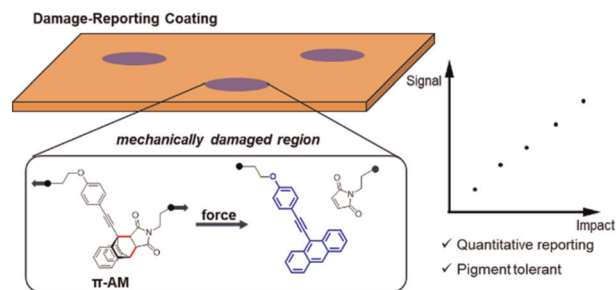


## COMMUNICATIONS

592

## Harnessing mechanochemical fluorescence toward autonomous damage-reporting coatings

Zeyu Wang, Junfeng Zhou, Zichen Ling, Qixin Zhou\* and Junpeng Wang\*



598

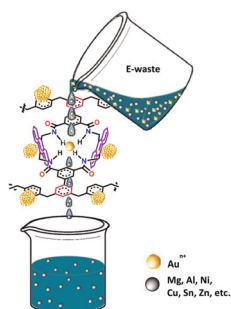
Sidechain engineering in poly(2,3-alkylthieno [3,4-*b*]pyrazine)s via GRIM polymerization: solubility, film formation, and device performance

Spencer J. Gilman, Nicolas C. Nicolaidis, Tomas J. Marsh, Paul C. Dastoor and Seth C. Rasmussen\*

	PC <sub>6</sub> TP	PEHTP
Lower bandgap	✓	✗
Better solubility	✗	✓
Better processability	✗	✓
More crystalline	✓	✗
Better devices	✗	✓



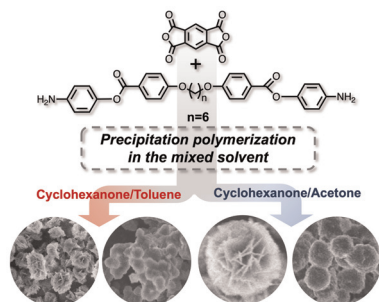
603



### Design and synthesis of tetralactam macrocycle-based porous organic polymers (POPs): application in the recovery of gold from e-waste

Ashish Kumar, Gulshan Anjum and Jarugu Narasimha Moorthy\*

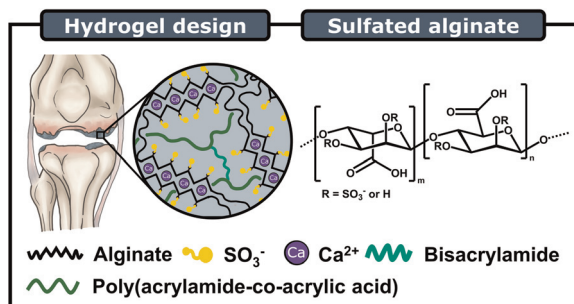
613



### Self-assembly of semiaromatic poly(amic acid) into flower-like microparticles via one-step precipitation polymerization

Yuqian Chen, Ryohei Kikuchi, Kan Hatakeyama-Sato, Yuta Nabae\* and Teruaki Hayakawa\*

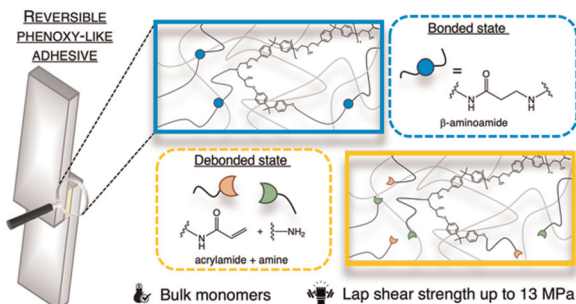
624



### Effect of sulfation on a tough hybrid hydrogel network

Sander Driesen, Valentino Atella, Kristi Kiick, Louis M. Pitet\* and Geert-Jan Graulus\*

637



### Debondable phenoxy-based structural adhesives with $\beta$ -amino amide containing reversible crosslinkers

Francesca Portone, Loc Tan Nguyen, Roberta Pinalli, Alessandro Pedrini, Filip E. Du Prez\* and Enrico Dalcanale\*

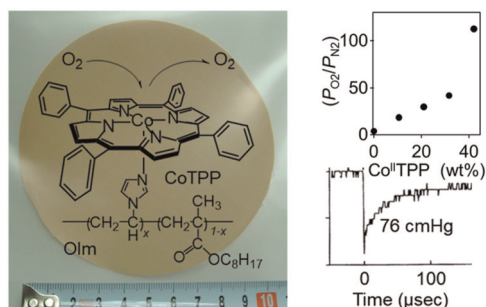


## PAPERS

643

# Highly facilitated permeation and enrichment of oxygen from air through a polyvinylimidazole membrane ligated with cobaltporphyrin that kinetically interacts with oxygen

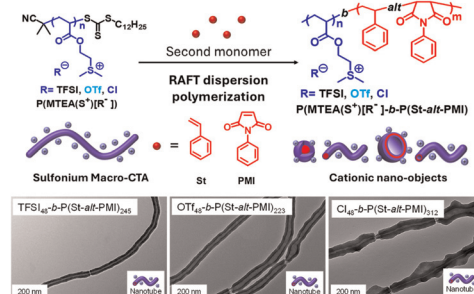
Hiromi Shinohara,\* Hirotugu Araiara and Hiroyuki Nishide\*



651

# Cationic nano-objects produced by polymerization-induced self-assembly using sulfonium-macro chain transfer agents with different counter anions

Hirotugu Miyakawa and Hideharu Mori\*



662

# Functional self-healing aldehyde-derived nanoparticle-crosslinked gelatin/PNIPAm-based adhesive gels

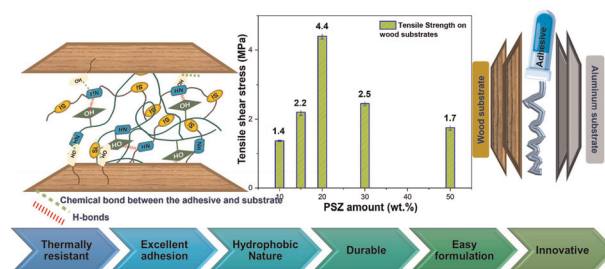
P. A. Parvathy, Sriparna De, Manjinder Singh, Gaurav Manik and Sushanta K. Sahoo\*



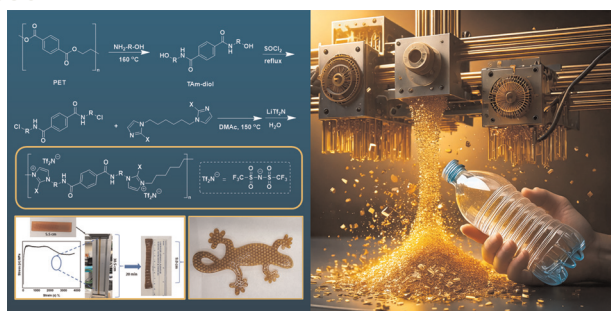
675

# Hydroxyl-functional acrylic adhesives: leveraging polysilazane chemistry for curing

Amrita Chatterjee, Shashank Jha, Sushmit Sen, Keshav Dev, Chayan Das and Pradip K. Maji\*



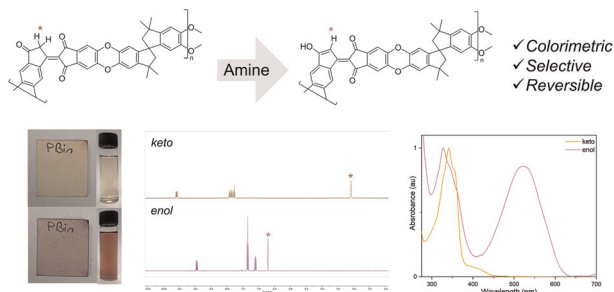
686



### Depolymerization of PET by common alkanolamines yields tunable monomers to expand the design space of 3D-printable, intrinsically self-healing polyamide-ionenes

Mousumi R. Bepari, Pravin S. Shinde and Jason E. Bara\*

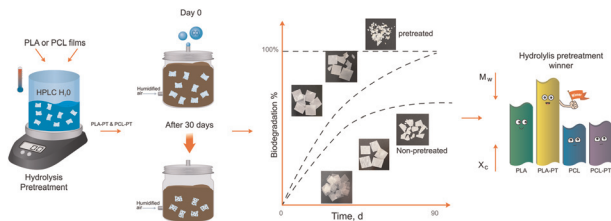
701



### Bindone-based polymer for colorimetric detection of volatile amines

Dylan Wilkinson,\* Dominic Taylor, Neil B. McKeown and Graeme Cooke\*

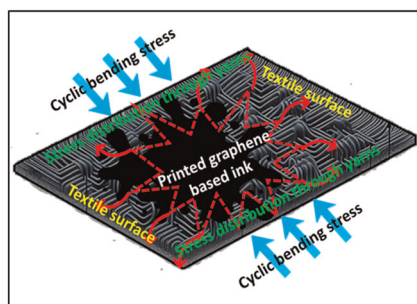
711



### Impact of hydrolysis pretreatment on the compostability of biodegradable poly(caprolactone) and poly(lactic acid) films

Jordan D'Amario, Wanwarang Limsukon, Anibal Bher\* and Rafael Auras\*

722



### Interfacial stress transfer in graphene-based polymeric inks on a textile surface for long term cycling stability

Monika Swami, Shanu Prabhakar, Susanta Ghosh and Debmalya Roy\*

