

## Polymer Hot Information on the Latest Week's Articles (May 2021)

May 03, 2021

### Reviews

#### Secondary Structure in Nonpeptidic Supramolecular Block Copolymers

Margarita Milton, Ru Deng, Arielle Mann, Chengyuan Wang, Danni Tang, and Marcus Weck\*  
*Accounts of Chemical Research*, Articles ASAP (Article), Publication Date (Web): April 29, 2021  
<https://doi.org/10.1021/acs.accounts.1c00028>

・ポリペプチド以外の合成ポリマーを使って2次構造構築するためのらせん・スタッキング・リンカーの設計

#### Chitosan Natural Polymer Material for Improving Antibacterial Properties of Textiles

Jianhui Li, Xiao Tian, Tao Hua,\* Jimin Fu, Mingkin Koo, Wingming Chan, and Tszyin Poon  
*ACS Applied Bio Materials*, Articles ASAP (Review), Publication Date (Web): April 24, 2021  
<https://doi.org/10.1021/acsabm.1c00078>

・キトサンファイバー/ナノファイバー利用で織物や繊維の抗菌性アップ、キチンを加工してから脱アセチル化

#### Photoresponsive Polymers with Aggregation-Induced Emission

Wutong Du, Xiaolin Liu, Lijie Liu, Jacky W. Y. Lam,\* and Ben Zhong Tang\*  
*ACS Applied Polymer Materials*, Articles ASAP (Review), Publication Date (Web): April 29, 2021  
<https://doi.org/10.1021/acsapm.1c00182>

・AIE機能ポリマーをAIEgens (AIE発生源) と光応答の化学/物理/超分子戦略によって光化学/物理機能設計

#### Utilizing Radio Frequency Plasma Treatment to Modify Polymeric Materials for Biomedical Applications

Alyssa Morelli and Morgan J. Hawker\*  
*ACS Biomaterials Science & Engineering*, Articles ASAP (Review), Publication Date (Web): April 29, 2021  
<https://doi.org/10.1021/acsbiomaterials.0c01673>

・汎用ポリマー材料表面のラジオ周波数プラズマ処理で細胞接着/抗菌/付着防止/血小板耐性などバイオ応用に

#### Biopolymer-Based Filtration Materials

Christopher R. Gough, Kayla Callaway, Everett Spencer, Kilian Leisy, Guoxiang Jiang, Shu Yang, and Xiao Hu\*  
*ACS Omega*, Articles ASAP (Mini-Review), Publication Date (Web): April 26, 2021  
<https://doi.org/10.1021/acsomega.1c00791>

・セルロース/糖/キチン/絹/大豆/ケラチンをフィルターに応用してウイルス/塵など異なるサイズの粒子を除去

#### Recent progress in the applications of amino-yne click chemistry

Jie Zhang, Zhiming Zhang Jia Wang, Qiguang Zang, Jing Zhi Sun \* and Ben Zhong Tang  
*Polym. Chem.*, 2021, Advance Article; The article was first published on 31 Mar 2021  
<https://doi.org/10.1039/D1PY00113B>

・2017年以降にアセチレン/2級アミンのクリック反応が表面官能基修飾/DDS/ポリマーやゲル合成に応用展開

#### Click chemistry strategies for the accelerated synthesis of functional macromolecules

Zhishuai Geng, Jaeman J. Shin, Yumeng Xi, Craig J. Hawker  
*J. Polym. Sci.*, Version of Record online:29 April 2021  
<https://doi.org/10.1002/pol.20210126>

・Sharplessがクリック反応を提唱して20年、クリック反応のポリマー合成やポリマー構造制御への応用を解説

### Polymer Synthesis

#### Inverse Bicontinuous Structure by Polymerization-Induced Self-Assembly Against Single-Chain Nanoparticles

Wei Wen, Song Guan, Zhenzhong Yang,\* and Aihua Chen\*  
*ACS Macro Lett.* 2021, 10, 603–608; Articles ASAP (Letter), Publication Date (Web): April 28, 2021  
<https://doi.org/10.1021/acsmacrolett.1c00156>

・RAFT-PISAでベシクルと異なる形態の集合体のスポンジやcubosome(キュービック相分散微粒子)を設計

#### A Model for Late-Stage Modification of Polyurethane Dendrimers Using Thiol-Ene Click Chemistry

Dhruba P. Poudel and Richard T. Taylor\*  
*ACS Omega*, Articles ASAP (Article), Publication Date (Web): April 29, 2021  
<https://doi.org/10.1021/acsomega.1c01609>

・イソシアネート/アミンおよびチオール/エン反応によるポリウレタン dendrimer の末端修飾のモデル反応

### Unraveling Halogen Effects in Supramolecular Polymerization

Jonas Matern, Nils Bäumer, and Gustavo Fernández\*

*Journal of the American Chemical Society*, Articles ASAP (Article), Publication Date (Web): April 29, 2021

<https://doi.org/10.1021/jacs.1c02384>

- ・超分子重合(分子スタッキング)でのハロゲン相互作用に着目して自己集合体の形成経路とマクロな形態制御

### Metal-Free Cationic Polymerization of Vinyl Ethers with Strict Temporal Control by Employing an Organophotocatalyst

Xun Zhang, Yu Jiang, Qiang Ma, Siping Hu, and Saihu Liao\*

*Journal of the American Chemical Society*, Articles ASAP (Communication), Publication Date (Web): April 26, 2021

<https://doi.org/10.1021/jacs.1c02500>

- ・ビニルエーテルのカチオン RAFT 重合に用いる光制御可能な有機光触媒(メタルフリー型)の開発の一例

### Cation Template-Assisted RAFT Cyclopolymerization of Hexa(Ethylene Glycol) Di(meth)acrylates to Thermoresponsive Pseudo-Crown Ether Polymers

Yoshihiko Kimura and Takaya Terashima\*

*Macromol Rapid Commun.*, Version of Record online:27 April 2021

<https://doi.org/10.1002/marc.202000670>

- ・カチオンを鋳型にしてジビニル化合物の選択的環化 RAFT 重合でクラウンエーテル側鎖をもつポリマーを合成

### Bio-based & Biomedical Polymers

#### Semi-interpenetrating Polyurethane Network Foams Containing Highly Branched Poly(N-isopropyl acrylamide) with Vancomycin Functionality

Thomas Swift, Richard Hoskins, John Hicks, Edward Dyson, Marc Daignault, Dorothy Buckle, C. W. Ian Douglas, Sheila MacNeil, and Stephen Rimmer\*

*ACS Applied Bio Materials*, Articles ASAP (Article), Publication Date (Web): April 27, 2021

<https://doi.org/10.1021/acsabm.1c00116>

- ・末端にバンコマイシン含む多分岐 PNIPAM/セミ IPN ポリウレタン複合体でグラム陽性菌に選択応答する材料

#### Supramolecular virus-like particles by co-assembly of triblock polypeptide and PAMAM dendrimers

Wenjuan Zhou, Lei Liu, Jianan Huang, Ying Cai, Martien A. Cohen Stuart, Renko de Vries and Junyou Wang  
*Soft Matter*, 2021, Advance Article; The article was first published on 26 Apr 2021

<https://doi.org/10.1039/D1SM00290B>

- ・トリブロックポリペプチドと COONa 末端 PAMAM デンドリマーが形成するウィルス様形態の超分子集合体

### Degradable Polymers

#### Biodegradable Flexible Electronic Device with Controlled Drug Release for Cancer Treatment

Hangfei Li, Fei Gao, Peng Wang, Lan Yin, Nan Ji, Liwei Zhang, Lingyun Zhao, Guohui Hou, Bingwei Lu, Ying Chen, Yinji Ma,\* and Xue Feng\*

*ACS Applied Materials & Interfaces*, Articles ASAP, Publication Date (Web): April 28, 2021

<https://doi.org/10.1021/acsami.1c04653>

- ・パクリタキセルリリース可能なソフトエレクトロニクスデバイス用材料、ポリ乳酸/ポリカーボネートを使用

#### Backbone-Degradable Vinyl Acetate Latex: Coatings for Single-Use Paper Products

Matthew C. D. Carter,\* Andrew Hejl, Samantha Woodfin, Brian Einsla, Miroslav Janco, Jim DeFelippis, Richard J. Cooper, and Ralph C. Even

*ACS Macro Lett.* 2021, 10, 591–597; Articles ASAP (Letter), Publication Date (Web): April 26, 2021

<https://doi.org/10.1021/acsmacrolett.1c00172>

- ・酢酸ビニルと環状カーボネートを乳化系でラジカル共重合して使い捨て紙用の水分散系コーティング剤開発

### Polymer Materials

#### Shape-Stable Hydrated Salts/Polyacrylamide Phase-Change Organohydrogels for Smart Temperature Management

Chenxiao Yin, Ji Lan, Xiangdong Wang, Yulin Zhang, Rong Ran, and Ling-Ying Shi\*

*ACS Applied Materials & Interfaces*, Articles ASAP, Publication Date (Web): April 27, 2021

<https://doi.org/10.1021/acsami.1c03996>

- ・アクリルアミドゲルとリン酸塩の結晶を使用して形状をしっかりと保ちながら蓄熱/放熱可能な複合材料を設計

#### Spin Filtering in Supramolecular Polymers Assembled from Achiral Monomers Mediated by Chiral Solvents

Amit Kumar Mondal, Marco D. Preuss, Marcin L. Ślęczkowski, Tapan Kumar Das, Ghislaine Vantomme, E. W. Meijer,\* and Ron Naaman\*

*Journal of the American Chemical Society*, Articles ASAP (Article), Publication Date (Web): April 30, 2021

<https://doi.org/10.1021/jacs.1c02983>

・キラル溶媒中で形成したアキラルモノマーからの超分子らせんポリマーを不斉誘起によるスピン選択に応用

#### **Synthesis of a Stable Benzoxazole Gel from an Imine Gel for Adsorption and Catalysis**

Yu Xin, Junxing Chen, Zujin Yang, and Jianyong Zhang\*

*Langmuir*, Articles ASAP (Article), Publication Date (Web): April 29, 2021

<https://doi.org/10.1021/acs.langmuir.1c00272>

・Pd ナノ微粒子を吸着してギ酸分解やクロム還元用触媒として利用できるベンゾオキサゾールゲルの合成

#### **Facile Synthesis of CO<sub>2</sub>-Responsive Nano-Objects: Batch versus Semi-Batch RAFT Copolymerization**

Xiaofeng Guo, Wencheng Shi, Hang Yin, Jiasheng Pan, Zhao Wang,\* Anchao Feng,\* and San H. Thang

*Macromol Rapid Commun.*, Version of Record online:26 April 2021

<https://doi.org/10.1002/marc.202000765>

・CO<sub>2</sub> 応答モノマーDEAEMA + 親水/疎水性モノマーのバッチ/セミバッチ型 RAFT 重合でナノ構造体を一段合成

#### **Polymer Structure & Physics**

##### **Dynamics across a Free Surface Reflect Interplay between Density and Cooperative Length: Application to Polystyrene**

Ronald P. White and Jane E. G. Lipson\*

*Macromolecules*, Articles ASAP (Article), Publication Date (Web): April 27, 2021

<https://doi.org/10.1021/acs.macromol.0c02742>

・表面から 10nm 程度の局所的なポリマー鎖のダイナミクスに関して界面近傍の低密度領域の緩和強度を議論

##### **Peculiar $\alpha$ - $\beta$ relaxations of Syndiotactic-Poly(methyl methacrylate)**

Cong-Cong Huang, Chen-Yang Liu

*Polymer*, Volume 225, 26 May 2021, 123760; Available online 13 April 2021

<https://doi.org/10.1016/j.polymer.2021.123760>

・誘電緩和でシンジオタクチック PMMA の  $\alpha$  と  $\beta$  緩和への立体規則性の影響やエチルエステルとの違いを議論

#### **Adhesion & Interface Science**

##### **Tough Adhesion of Freezing- and Drying-Tolerant Transparent Nanocomposite Organohydrogels**

Beibei Liu, Feibo Li, Pengying Niu, and Huanjun Li\*

*ACS Applied Materials & Interfaces*, Articles ASAP, Publication Date (Web): April 29, 2021

<https://doi.org/10.1021/acsami.1c04758>

・水酸化アルミニウムナノ微粒子を添加して凍結/乾燥に強く膨潤状態で高靱性接着可能なハイドロゲルを設計

##### **Durable and Flexible Hydrophobic Surface with a Micropatterned Composite Metal-Polymer Structure**

Mingjie Li,\* Yulong Chen, Wenxin Luo, and Xing Cheng\*

*Langmuir*, Articles ASAP (Article), Publication Date (Web): April 27, 2021

<https://doi.org/10.1021/acs.langmuir.1c00227>

・パターン形成シリコン鑄型にメッキ作製した表面凹凸ある Ni にテフロンをスピンコートして表記の機能発現

#### **Crystal Engineering & Liquid Crystals**

##### **Near-Zero Azimuthal Anchoring of Liquid Crystals Assisted by Viscoelastic Bottlebrush Polymers**

Yuji Kinose, Keita Sakakibara, Osamu Sato, and Yoshinobu Tsujii\*

*ACS Applied Polymer Materials*, Articles ASAP (Article), Publication Date (Web): April 26, 2021

<https://doi.org/10.1021/acsapm.1c00227>

・ポリメタクリル酸エステルのボトルブラシ架橋フィルム表面の液晶分子のアンカリング効果と分子配向制御

##### **An Organosuperelastic Mechanism with Bending Molecular Chain Bundles**

Toshiyuki Sasaki, Shunichi Sakamoto, Emile R. Engel, and Satoshi Takamizawa\*

*Crystal Growth & Design*, Articles ASAP (Article), Publication Date (Web): April 27, 2021

<https://doi.org/10.1021/acs.cgd.1c00089>

・形状記憶合金が示す超塑性の機構を超塑性有機結晶材料の変形挙動から解明、結晶性ポリマーと共通点あり

#### **General Chemistry & Others**

##### **"ACS in Focus"**

・ACS から最近研究を始めた人(院生や研究者対象)向けのオンラインの入門解説シリーズが ACS から発刊、60 分限定で無料で中身も閲覧可能、今のところはポリマー関連のものはないが、今後刊行されることを期待

[https://pubs.acs.org/series/infocus?utm\\_source=pubs\\_institutional\\_marketing&utm\\_medium=website&utm\\_campaign=C\\_HAN\\_0421\\_EYY\\_In\\_Focus\\_Inaugural\\_Japan&src=CHAN\\_0421\\_EYY\\_In\\_Focus\\_Inaugural\\_Japan&ref=pubs\\_institutional\\_mar](https://pubs.acs.org/series/infocus?utm_source=pubs_institutional_marketing&utm_medium=website&utm_campaign=C_HAN_0421_EYY_In_Focus_Inaugural_Japan&src=CHAN_0421_EYY_In_Focus_Inaugural_Japan&ref=pubs_institutional_mar)

May 10, 2021

### Reviews

#### Analytical Cryo-Scanning Electron Microscopy of Hydrated Polymers and Microgels (Published as part of the Accounts of Chemical Research special issue "Cryogenic Electron Microscopy")

Jing Liang, Xixi Xiao, Tseng-Ming Chou, and Matthew Libera\*

*Accounts of Chemical Research*, Articles ASAP (Article), Publication Date (Web): May 4, 2021

<https://doi.org/10.1021/acs.accounts.1c00109>

- ・水和したポリマーやマイクロゲルを観察対象とした凍結 SEM/EDS の手法開発、ナノ/分子レベルへの適用は不可

#### Sustained Release Systems for Delivery of Therapeutic Peptide/Protein

Tianqi Nie, Wei Wang, Xiaohu Liu, Yanan Wang, Keyang Li, Xinyu Song, Jingwen Zhang, Liangmin Yu,\* and Zhiyu He\*

*Biomacromolecules*, Articles ASAP (Review), Publication Date (Web): May 6, 2021

<https://doi.org/10.1021/acs.biomac.1c00160>

- ・ペプチド医薬用のキャリアとして合成ポリマー/タンパク質/脂質/無機材料ごとに分類して最近の動向を解説

#### Microscopic Imaging Techniques for Molecular Assemblies: Electron, Atomic Force, and Confocal Microscopies

Ryou Kubota, Wataru Tanaka, and Itaru Hamachi\*

*Chemical Reviews*, Articles ASAP (Review), Publication Date (Web): May 4, 2021

<https://doi.org/10.1021/acs.chemrev.0c01334>

- ・ファイバー/ゲル/ベシクル/コアセルベート等の自己組織化構造の電顕/AFM/共焦点レーザー顕微鏡観察を解説

#### Translational Applications of Hydrogels

Santiago Correa, Abigail K. Grosskopf, Hector Lopez Hernandez, Doreen Chan, Anthony C. Yu, Lyndsay M. Stapleton, and Eric A. Appel\*

*Chemical Reviews*, Articles ASAP (Review), Publication Date (Web): May 3, 2021

<https://doi.org/10.1021/acs.chemrev.0c01177>

- ・注射器で打ち込み可能なハイドロゲルの DDS/細胞デリバリー/医用診療への応用に限定した網羅的な総説

#### Molecular Self-Assembly and Supramolecular Chemistry of Cyclic Peptides

Qiao Song, Ziheng Cheng, Maria Kariuki, Stephen C. L. Hall, Sophie K. Hill, Julia Y. Rho, and Sébastien Perrier\*

*Chemical Reviews*, Articles ASAP (Review), Publication Date (Web): May 3, 2021

<https://doi.org/10.1021/acs.chemrev.0c01291>

- ・環状ペプチドのチューブ状自己集合体の構造と機能化/応用、鎖状ポリマー/ペプチドとの複合化などを網羅

#### Practical synthesis of dendritic hyperbranched polymers by reversible deactivation radical polymerization

Shigeru Yamago

*Polym. J.* (2021), Published 07 May 2021

<https://doi.org/10.1038/s41428-021-00487-x>

- ・ TERP による多分岐ポリマー合成(かなり以前からの仕事)に関する著者自身の研究を紹介、ATRP 関連にも言及

#### A case study of monomer design for controlled/living supramolecular polymerization.

Kazunori Sugiyasu

*Polym J* (2021), Published 26 April 2021

<https://doi.org/10.1038/s41428-021-00478-y>

- ・超分子リビング重合に関する総説、筆者らの重合系を中心にその他の研究グループの成果も網羅して解説

#### Multifaceted Design and Emerging Applications of Tissue Adhesives

Zhenwei Ma, Guangyu Bao, and Jianyu Li

*Adv. Mater.* 2021, 2007663, Version of Record online: 06 May 2021

<https://doi.org/10.1002/adma.202007663>

- ・細胞接着に関する話題を化学/生物/材料の観点から眺めて整理、レオロジー的な要素にもしっかり触れている

### Polymer Synthesis

#### Recyclable Polyhydroxyalkanoates via a Regioselective Ring-Opening Polymerization of $\alpha,\beta$ -Disubstituted $\beta$ -Lactone Monomers

Yu-Tong Li,†Hui-Ying Yu, Wen-Bing Li, Ye Liu,\* and Xiao-Bing Lu

*Macromolecules*, Articles ASAP (Article), Publication Date (Web): May 6, 2021

<https://doi.org/10.1021/acs.macromol.1c00097>

・縮合環をもつ環状エステル( $\beta$ -ラクトン)の選択的開環重合でリサイクル可能な立体規則性ポリエステルを合成

### Photoredox Organocatalysts with Thermally Activated Delayed Fluorescence for Visible-Light-Driven Atom Transfer Radical Polymerization

Zhongwei Zhang, Weiping Chen,\* Yuewei Zhang, Yue Wang, Yuelan Tian, Liping Fang,\* and Xinwu Ba  
*Macromolecules*, Articles ASAP (Article), Publication Date (Web): May 4, 2021

<https://doi.org/10.1021/acs.macromol.1c00090>

・TADF(熱誘起遅延蛍光)機能を組み込んだ可視光制御 ATRP 用光レドックス有機触媒を開発して重合制御に応用

### Radical Addition to N,N-Diaryl Dihydrophenazine Photoredox Catalysts and Implications in Photoinduced Organocatalyzed Atom Transfer Radical Polymerization

Daniel A. Corbin, Katherine O. Puffer, Katherine A. Chism, Justin P. Cole, Jordan C. Theriot, Blaine G. McCarthy, Bonnie L. Buss, Chern-Hooi Lim, Sarah R. Lincoln, Brian S. Newell, and Garret M. Miyake\*  
*Macromolecules*, Articles ASAP (Article), Publication Date (Web): May 4, 2021

<https://doi.org/10.1021/acs.macromol.1c00501>

・光制御 ATRP 用有機触媒の高効率化、フェナジン骨格に置換基導入(表題中の radical は置換基を意味している)

### Radical Cations of Phenoxazine and Dihydrophenazine Photoredox Catalysts and Their Role as Deactivators in Organocatalyzed Atom Transfer Radical Polymerization

Daniel A. Corbin, Blaine G. McCarthy, Zach van de Lindt, and Garret M. Miyake\*  
*Macromolecules*, Articles ASAP (Article), Publication Date (Web): May 3, 2021

<https://doi.org/10.1021/acs.macromol.1c00640>

・上記論文と同著者ら、表題のラジカルカチオンの成長末端ラジカルの不活性化(ドーマント化)への関与を議論

### Epoxy-Rich Systems with Preference for Etherification over Amine-Epoxy Reactions for Tertiary Amine Accelerators

Björn Erik Fristrup Ekbrant, Anne Ladegaard Skov, and Anders E. Daugaard\*  
*Macromolecules*, Articles ASAP (Article), Publication Date (Web): May 2, 2021

<https://doi.org/10.1021/acs.macromol.0c02630>

・最近は見かけない 3 級アミン触媒によるビスフェノール A エポキシ樹脂のアミン硬化の教科書的な反応解析

### Selective Ring-Opening Allene Metathesis: Polymerization or Ruthenium Vinylidene Formation

William J. Neary,\* Yunyan Sun, and Jeffrey S. Moore\*  
*ACS Macro Lett.* 2021, 10, 642-648, Articles ASAP (Letter), Publication Date (Web): May 5, 2021

<https://doi.org/10.1021/acsmacrolett.1c00229>

・著者らの一連の ROMP シリーズ、今度は環状アレンの開環重合を開発、第 2 世代グラブス触媒が重合に有効

### Sequence-Encoded Macromolecules with Increased Data Storage Capacity through a Thiol-Epoxy Reaction

Matthieu Soete, Chiel Mertens, Resat Aksakal, Nezha Badi, and Filip Du Prez\*  
*ACS Macro Lett.* 2021, 10, 616-622, Articles ASAP (Letter), Publication Date (Web): April 30, 2021

<https://doi.org/10.1021/acsmacrolett.1c00275>

・逐次かつ定量的なチオール/エポキシ反応系を利用してポリマーシーケンス制御して 01 コード情報を記録

### PhotoATRP Approach to Poly(methyl methacrylate) with Aggregation-Induced Emission

Wenli Liu, Qizhi Yang,\* Yili Yang, Feiyue Xing, and Pu Xiao\*  
*Industrial & Engineering Chemistry Research*, Articles ASAP, Publication Date (Web): May 3, 2021

<https://doi.org/10.1021/acs.iecr.1c00798>

・AIE 基を組み込んだ ATRP 開始剤を用いて銅/アミン触媒で重合制御、PMMA の開始末端導入されると AIE 発現

### Analytical estimates of front velocity in the frontal polymerization of thermoset polymers and composites

Aditya Kumar, Yuan Gao, Philippe H. Geubelle  
*J. Polym. Sci.*, Version of Record online: 30 April 2021

<https://doi.org/10.1002/pol.20210155>

・過去の論文で報告されている熱硬化系 ROMP のフロント移動速度を数値解析してパラメータフィッティング

### $\beta$ -Pinene-Derived Polyesteramides and Their Blends: Advances in Their Upscaling, Processing, and Characterization

Magdalena Maria Kleybolte and Malte Winnacker  
*Macromol. Rapid Commun.* 2021, 2100065, Version of Record online: 07 May 2021

<https://doi.org/10.1002/marc.202100065>

・ $\beta$ -ピネンを酸化して得たケトンさらにラクタムに誘導して  $\epsilon$ -カプトラクタムと共重合してポリアミド合成

### Heat- and Light-Responsive Materials Through Pairing Dynamic Thiol–Michael and Coumarin Chemistry

Progyateg Chakma, Shiwanka V. Wanasinghe, Colleen N. Morley, Sebastian C. Francesconi, Kei Saito, Jessica L. Sparks, and Dominik Konkolewicz

*Macromol. Rapid Commun.* 2021, 2100065, Version of Record online: 06 May 2021

<https://doi.org/10.1002/marc.202100070>

・クマリン二量化とチオール/マイケル付加型の動的共有結合架橋点を組み込んで耐熱性ポリマーを光物性制御

### Significantly Red-Shifted Emissions of Nonconventional AIE Polymers Containing Zwitterionic Components

Qing Huang, Jiaqi Cheng, Yuran Tang, Yongqiong Wu, Dan Xia, Yuchen Zheng, and Mingming Guo\*

*Macromol. Rapid Commun.* 2021, 2100174, Version of Record online:05 May 2021

<https://doi.org/10.1002/marc.202100174>

・双性イオンメタクリレート共重合体 AIE、原料はメタクリル酸 N,N-ジメチルアミノエチルとイタコン酸無水物

### Exploring Cyclic Sulfamidate Building Blocks for the Synthesis of Sequence-Defined Macromolecules

Stephen Andrew Hill,\* Robert Steinfort, Sandra Mücke, Josefine Reifenberger, Tobias Sengpiel, and Laura Hartmann\*

*Macromol. Rapid Commun.* 2021, 2100193, Version of Record online:04 May 2021

<https://doi.org/10.1002/marc.202100193>

・カルボン酸をもつ環状スルホン酸アミドを設計して逐次的に成長反応を制御してポリマーシーケンス制御

### Hybridization of Step-/Chain-Growth and Radical/Cationic Polymerizations Using Thioacetals as Key Components for Triblock, Periodic and Random Multiblock Copolymers with Thermoresponsiveness

Mineto Uchiyama,\* Masahiro Osumi, Kotaro Satoh, and Masami Kamigaito\*

*Macromol. Rapid Commun.* 2021, 2100192, Version of Record online:04 May 2021

<https://doi.org/10.1002/marc.202100192>

・連鎖反応と逐次反応/ラジカル重合とカチオン重合をハイブリッドして共重合体シーケンスと温度応答制御

### Synthesis and Post-Polymerization Modification of Poly(N-(4-Vinylphenyl)Sulfonamide)s

Edgar Molle, Hatice Mutlu,\* and Patrick Theato\*

*Macromol. Rapid Commun.* 2021, 2100063, Version of Record online:03 May 2021

<https://doi.org/10.1002/marc.202100063>

・側鎖にスルホンアミドを導入したスチレン誘導体を新規合成して重合・後重合反応で β-アミノ酸構造を導入

### Ring Opening Metathesis Polymerization of a New Monomer Derived from a Nitroso Diels–Alder Reaction

Selesha Subnaik, Katya Sheridan, and Christopher E. Hobbs\*

*Macromol. Chem. Phys.* 2021, 2100098, Version of Record online:06 May 2021

<https://doi.org/10.1002/macp.202100098>

・シクロペンタジエンと BOC 保護した N-ヒドロキシアミンの環状生成物を ROMP でポリマー化してから脱保護

### Direct Determination of Interchain Transfer Constants of Benzyl Acrylate to Poly(Ethyl Acrylate) by RAFT Polymerization and Polymer Chromatography

Xiaohua Li, Yang Xue, Xinyu Ma, and Ruiwei Guo

*Macromol. Chem. Phys.* 2021, 2100074, Version of Record online:02 May 2021

<https://doi.org/10.1002/macp.202100074>

・アクリレート RAFT 重合系のポリマーへの連鎖移動定数を分子内と分子間の連鎖移動を区別して SEC で解析

### Bio-based & Biomedical Polymers

#### Bio-inspired Incrustation Interfacial Polymerization of Dopamine and Cross-linking with Gelatin toward Robust, Biodegradable Three-Dimensional Hydrogels

Hiroya Abe\* and Hiroshi Yabu

*Langmuir*, Articles ASAP (Article), Publication Date (Web): May 5, 2021

<https://doi.org/10.1021/acs.langmuir.1c00364>

・ラッカーゼ(酵素)によるドーパミンの酸化反応をゼラチンに適用して生分解性ゲルを作製、鋳型表面で硬化

#### Biobased Nonisocyanate Polyurethanes as Recyclable and Intrinsic Self-Healing Coating with Triple Healing Sites

Ping Sen Choong, Ning Xi Chong, Eric Kwok Wai Tam, Abdul Majeed Seayad, Jayasree Seayad,\* and Satyasankar Jana\*

*ACS Macro Lett.* 2021, 10, 635-641, Articles ASAP (Letter), Publication Date (Web): May 5, 2021

<https://doi.org/10.1021/acsmacrolett.1c00163>

・フルフルール原料のカーボネート/アミンを用いてイソシアネート使用なしで自己修復型のポリウレタン合成

### **Nonbiofouling Coatings Using Bottlebrushes with Concentrated Polymer Brush Architecture**

Chiaki Yoshikawa,\* Keita Sakakibara, Punnida Nonsuwan, Tomohiko Yamazaki, and Yoshinobu Tsujii\*

*Biomacromolecules*, Articles ASAP (Article), Publication Date (Web): May 3, 2021

<https://doi.org/10.1021/acs.biomac.1c00247>

・RAFT 重合で得たポリマー開始剤から ATRP で濃厚ブラシポリマーを作製しスピンコートで基材を生体適合化

### **Role of Hydrophilic Monomers in $\alpha$ -Tocopherol-Based Copolymers in Causing Cell Death by ROS Production**

Takuya Kitazume, Ning Gan, Shin-Ichi Yusa, and Tooru Ooya\*

*Macromol. Chem. Phys.* 2021, 2100099, Version of Record online:02 May 2021

<https://doi.org/10.1002/macp.202100099>

・ $\alpha$ -コハク酸  $\alpha$ -トコフェリルを含むメタクリレート共重合体の癌細胞特異的ターゲティングと ROS 生成挙動

### **Polymer Materials**

#### **Supertough, Ultrastrong, and Transparent Poly(lactic acid) via Directly Hot Pressing under Cyclic Compressing-Releasing**

Zhao-Xia Huang, Meng-Meng Wang, Yan-Hong Feng,\* and Jin-Ping Qu\*

*Macromolecules*, Articles ASAP (Article), Publication Date (Web): May 7, 2021

<https://doi.org/10.1021/acs.macromol.1c00530>

・繰り返し圧縮でポリ乳酸を高強度化、GG コンフォメーション増加して破断強度 84MPa/破断伸び 272%到達

#### **Photo/Thermal Dual Responses in Aqueous-Soluble Copolymers Containing 1-Naphthyl Methacrylate**

Jiacheng Zhao, Gerald Tze Kwang Er, Francis J. McCallum, Sisi Wang, Changkui Fu, Joshua A. Kaitz, James F. Cameron, Peter Trefonas, III, Idriss Blakey, Hui Peng,\* and Andrew K. Whittaker\*

*Macromolecules*, Articles ASAP (Article), Publication Date (Web): May 7, 2021

<https://doi.org/10.1021/acs.macromol.1c00297>

・1-ナフチルエステルを含むメタクリル酸エステル共重合体の側鎖構造を光照射異性化で水中発光特性を制御

#### **Catechol as a Universal Linker for the Synthesis of Hybrid Polyfluorene/Nanoparticle Materials**

Jonas Delabie, Ward Ceunen, Siebe Detavernier, Julien De Winter, Pascal Gerbaux, Thierry Verbiest, and Guy Koeckelberghs\*

*Macromolecules*, Articles ASAP (Article), Publication Date (Web): May 5, 2021

<https://doi.org/10.1021/acs.macromol.1c00386>

・金属酸化物、合金、金属のいずれの素材の微粒子でも表面修飾が可能な官能基としてカテコールの利用提案

#### **Amphiphilic Zwitterionic Acrylate/Methacrylate Copolymers for Marine Fouling-Release Coatings**

Florian Koschitzki,\* Robin Wanka, Lennart Sobota, Harrison Gardner, Kelli Z. Hunsucker, Geoffrey W. Swain, and Axel Rosenhahn\*

*Langmuir*, Articles ASAP (Article), Publication Date (Web): April 30, 2021

<https://doi.org/10.1021/acs.langmuir.1c00428>

・双生イオン型アクリレート/メタクリレートを疎水性モノマーと組み合わせてポリマーを設計し防汚効果発現

#### **Tough Multimaterial Interfaces through Wavelength-Selective 3D Printing**

Neil D. Dolinski, E. Benjamin Callaway, Caitlin S. Sample, Luke F. Gockowski, Roberto Chavez, Zachariah A. Page, Fabian Eisenreich, Stefan Hecht, Megan T. Valentine, Frank W. Zok, and Craig J. Hawker\*

*ACS Applied Materials & Interfaces*, Articles ASAP, Publication Date (Web): April 30, 2021

<https://doi.org/10.1021/acsami.1c06062>

・アクリレートをラジカル重合硬化系とオキセタンカチオン重合硬化系を 2 波長で可視光制御して異種材料接着

#### **Synthesis of Bimodal Open-Porous Polystyrene Monoliths with Glycopolymer Surfaces for High-Speed Protein Chromatography**

Jian-Bo Qu,\* Yang-Yang Lin, Yuan Liu, Bing-Qi Zhu, Yong-Jun Sun, Wen-Shu Peng, and Jing Li

*ACS Applied Polymer Materials*, Articles ASAP (Article), Publication Date (Web): April 30, 2021

<https://doi.org/10.1021/acsapm.1c00232>

・乳化系 RAFT 重合で 2 重連続孔をもつポリスチレンモノリスを作製して液クロでの糖タンパク分離に応用

#### **Heterogeneous Charged Complexes of Random Copolymers for the Segregation of Organic Molecules**

Jeremy Wang, Curt Waltmann, Han Umana-Kossio, Monica Olvera de la Cruz,\* and John M. Torkelson\*

*ACS Central Science*, Articles ASAP (Research Article), Publication Date (Web): May 4, 2021

<https://doi.org/10.1021/acscentsci.1c00119>

・側鎖にカチオン/アニオンを含むランダム共重合体複合体のイオン/疎水性相互作用で有機化合物を認識分離

## Visualization of the Necking Initiation and Propagation Processes during Uniaxial Tensile Deformation of Crystalline Polymer Films via the Generation of Fluorescent Radicals

Sota Kato, Daisuke Aoki, Kazusato Oikawa, Kousuke Tsuchiya, Keiji Numata, and Hideyuki Otsuka\*

*ACS Macro Lett.* 2021, 10, 623-627, Articles ASAP (Letter), Publication Date (Web): May 3, 2021

<https://doi.org/10.1021/acsmacrolett.1c00185>

- ・ポリマーに応力集中するとラジカル解離して発光する系を応用して結晶性ポリマーのネックングを可視化

## Polymer Structure & Physics

### Solvent-Induced Crystallization of Poly(phenylene sulfone)

Lara E. Grünig, Andreas Meyer, Thomas Emmeler, Volker Abetz, and Ulrich A. Handge\*

*Macromolecules*, Articles ASAP (Article), Publication Date (Web): May 7, 2021

<https://doi.org/10.1021/acs.macromol.1c00323>

- ・NMP/DMAc/DMFなどの貧溶媒を用いたポリフェニレンスルフィドの結晶化をAFM/WAXS/PLM/SEMで解析

### Importance of Broad Temperature Windows and Multiple Rheological Approaches for Probing Viscoelasticity and Entropic Elasticity in Vitrimers

Laura E. Porath and Christopher M. Evans\*

*Macromolecules*, Articles ASAP (Article), Publication Date (Web): May 5, 2021

<https://doi.org/10.1021/acs.macromol.0c02800>

- ・動的共有結合架橋しているPDMSを-40~160°C領域で観測してゴム弾性と粘弾性(流動領域)挙動を観察

### Effect of Chain Length on Polymer Stereocomplexation: A Quantitative Study

Dongdong Zhou, Miao Xu, Jinbin Li, Rui Tan, Zhuang Ma, and Xue-Hui Dong\*

*Macromolecules*, Articles ASAP (Article), Publication Date (Web): May 4, 2021

<https://doi.org/10.1021/acs.macromol.1c00380>

- ・鎖長の異なるD-PLA/L-PLAの組み合わせの錯体形成(結晶化)で分子鎖が末端や鎖長をどこまで認識するか?

### Rheology of Conjugated Polymers with Bulky and Flexible Side Chains

Zhi-Chao Yan,\* Yanan Li, Zhenfeng Guo, Akira Shinohara, Takashi Nakanishi, Guangming Chen,\* Chengjun Pan,\* and Florian J. Stadler\*

*Macromolecules*, Articles ASAP (Article), Publication Date (Web): May 3, 2021

<https://doi.org/10.1021/acs.macromol.1c00044>

- ・かさ高い側鎖のフルオレン等共役ポリマーのレオロジーは異なる温度領域でWLFとアレニウス型の特性発現

### 1D-Confinement Inhibits the Anomaly in Secondary Relaxation of a Fluorinated Polymer

David Nieto Simavilla, Anabella A. Abate, Jie Liu, Yves H. Geerts, Patricia Losada-Peréz, and Simone Napolitano\*

*ACS Macro Lett.* 2021, 10, 649-653, Articles ASAP (Letter), Publication Date (Web): May 6, 2021

<https://doi.org/10.1021/acsmacrolett.1c00220>

- ・Al基板上のフッ素ポリマーの $\alpha$ と $\beta$ 緩和を数十nmの厚み領域で実測して議論、 $\beta$ 緩和で想定外の挙動を報告

## Crystal Engineering & Liquid Crystals

### Transfer and Amplification of Iodine-Based Diacetylene Amphiphiles to Anisotropic Optical Properties by Uniaxial Orientation in Thin Films

Yu-Jin Choi,† Seohee Park,† Dong-Gue Kang, Seok-In Lim, Jahyeon Koo, Duy Thanh Tran, Sungjune Park, and Kwang-Un Jeong\*

*ACS Applied Materials & Interfaces*, Articles ASAP, Publication Date (Web): May 6, 2021

<https://doi.org/10.1021/acsami.0c22457>

- ・ヨウ素(I<sup>3</sup>-)を対アニオンに含むDAの重合を利用した1軸延伸フィルムの吸収バンドの広域化と高増幅効率

## General Chemistry & Others

### Microplastics are everywhere — but are they harmful? マイクロプラスチックは有害なのか

XiaoZhi Lim, *Nature* (News Feature), Vol 593, pp. 22-25 (2021), on 6 May 2021,

[Microplastics are everywhere — but are they harmful? \(nature.com\)](https://www.nature.com/articles/d41586-021-00349-9)

### High-performance plastic made from renewable oils is chemically recyclable by design

*Nature*, Vol 590, pp. 391-392 (2021), NEWS AND VIEWS, 17 FEBRUARY 2021

<https://www.nature.com/articles/d41586-021-00349-9>

(日本語解説) 完全なリサイクルを可能にするバイオマスプラスチック,

*Nature* ダイジェスト Vol. 18 No. 5, , [目次 | Nature ダイジェスト | Nature Portfolio \(natureasia.com\)](#)



May 17, 2021

## Reviews

### Thermal Hysteresis Involving Reversible Self-Catalytic Reactions

Masahiko Yamaguchi\*

*Accounts of Chemical Research*, Articles ASAP (Article), Publication Date (Web): May 13, 2021

<https://doi.org/10.1021/acs.accounts.1c00090>

- ・ヒステリシスを伴う可逆反応設計で自己触媒反応に応用(不可逆な自己触媒は増幅発散)、着目すべき発想含む

### The Power of Fiber Twist

Xiang Zhou, Shaoli Fang, Xueqi Leng, Zunfeng Liu,\* and Ray H. Baughman\*

*Accounts of Chemical Research*, Articles ASAP (Article), Publication Date (Web): May 13, 2021

<https://doi.org/10.1021/acs.accounts.1c00112>

- ・DNA/RNAに限らず繊維には必須のねじれ構造に照準をあてて構造形成/多重らせん/機能発現/応用展開を解説

### Design of Switchable Enzyme Carriers Based on Stimuli-Responsive Porous Polymer Membranes for Bioapplications

Li Qi\* and Juan Qiao

*ACS Applied Bio Materials*, Articles ASAP (Review), Publication Date (Web): May 14, 2021

<https://doi.org/10.1021/acsabm.1c00338>

- ・多孔ポリマー材料内壁に生体分子を含む刺激応答分子で修飾して On-Off 可能な機能制御型の材料の生体応用

### The Vibrant Interplay of Light and Self-Reporting Macromolecular Architectures

Christina M. Geiselhart and Hatice Mutlu

*Macromol. Chem. Phys.* 2021, 2100057, Version of Record online: 04 May 2021

<https://doi.org/10.1002/macp.202100057>

- ・外部刺激応答で発光して外部に故障や欠陥などの情報を発信する材料の合成に関する最近の研究展開を紹介

### Recent Advances in Living Cationic Polymerization with Emerging Initiation/Controlling Systems

Yinan Chen, Lu Zhang, Yi Jin, Xinrong Lin,\* and Mao Chen\*

*Macromol. Rapid Commun.* 2021, 2100148, Version of Record online:10 May 2021

<https://doi.org/10.1002/marc.202100148>

- ・リビングカチオン重合に関する久々の総説、光開始制御やカチオン/ラジカル交換 RAFT 重合の話題が中心に

### Covalently Crosslinked Hydrogels via Step-Growth Reactions: Crosslinking Chemistries, Polymers, and Clinical Impact

Yongsheng Gao, Kevin Peng, and Samir Mitragotri\*

*Adv. Mater.* 2021, 2006362, Version of Record online:14 May 2021

<https://doi.org/10.1002/adma.202006362>

- ・液状材料を注射器で患部に打ち込んですぐにクリック反応でハイドロゲル化する医用材料の最新開発状況

### Expansion Microscopy with Multifunctional Polymer Dots

Jie Liu, Xiaofeng Fang, Zhihe Liu, Rongqin Li, Yicheng Yang, Yujie Sun, Zhongying Zhao, and Changfeng Wu\*

*Adv. Mater.* 2021, 2007854, Version of Record online:14 May 2021

<https://doi.org/10.1002/adma.202007854>

- ・膨張顕微鏡(Expansion microscopy)はハイドロゲルを利用して高解像度が得られる 2016 年に開発の新技术

## Polymer Synthesis

### Controlled Polymerization of Norbornene Cycloparaphenylenes Expands Carbon Nanomaterials Design Space

Ruth L. Maust, Penghao Li, Baihao Shao, Sarah M. Zeitler, Peiguan B. Sun, Harrison W. Reid, Lev N. Zakharov, Matthew R. Golder, and Ramesh Jasti\*

*ACS Central Science*, Articles ASAP (Research Article), Publication Date (Web): May 13, 2021

<https://doi.org/10.1021/acscentsci.1c00345>

- ・環状カーボン化合物のシクロパラフェニレンにノルボルネンを導入、開環重合でカーボン系ポリマーを合成

### Improving the Kumada Catalyst Transfer Polymerization with Water-Scavenging Grignard Reagents

Susan Cheng, Shuyang Ye, Chirag N. Apte, Andrei K. Yudin, and Dwight S. Seferos\*

*ACS Macro Lett.* 2021, 10, 697-701, Articles ASAP (Letter), Publication Date (Web): May 14, 2021

<https://doi.org/10.1021/acsmacrolett.1c00233>

- ・Ni 触媒を用いる触媒移動型反応(グルニヤール化合物の熊田反応を利用)で水溶性共役ポリマーを合成に応用

### Expanding the Scope of 2D Black Phosphorus Catalysis to the Near-Infrared Light Initiated Free Radical

### Photopolymerization

Azra Kocaarslan, Zafer Eroglu, Gorkem Yilmaz, Onder Metin,\* and Yusuf Yagci\*

*ACS Macro Lett.* 2021, 10, 679-683, Articles ASAP (Letter), Publication Date (Web): May 13, 2021

<https://doi.org/10.1021/acsmacrolett.1c00298>

・2D 薄膜が積層した構造をとっている黒リンを触媒に用いて可視/近赤外光照射でラジカル重合開始系に応用

### Amphiphilic Core Cross-Linked Star Polymers for the Delivery of Hydrophilic Drugs from Hydrophobic Matrices

Katarzyna Somszor, Stephanie Allison-Logan, Fatemeh Karimi, Thomas McKenzie, Qiang Fu, Andrea O'Connor, Greg Qiao,\* and Daniel Heath\*

*Biomacromolecules*, Articles ASAP (Article), Publication Date (Web): May 13, 2021

<https://doi.org/10.1021/acs.biomac.1c00296>

・光 ATRP で側鎖 PEG アクリレート重合/2 段階重合で 1 分子ゲル合成/外側に疎水鎖を開環重合で導入 DDS 応用

### Synthesis, Characterization, and Simulation of Four-Armed Megamolecules

Shengwang Zhou, Peng He, Sonali Dhindwal, Valerie L. Grum-Tokars, Ying Li, Kelly Parker, Justin A. Modica, Reiner Bleher, Roberto dos Reis, Joshua Zuchniarz, Vinayak P. Dravid, Gregory A. Voth, Benoît Roux, and Milan Mrksich\*

*Biomacromolecules*, Articles ASAP (Article), Publication Date (Web): May 12, 2021

<https://doi.org/10.1021/acs.biomac.1c00118>

・酵素 3 次元構造体をリン酸エステル結合によりリンカーで 4 分子結合した“メガ分子”を合成、TEM 直接観察

### ATRP-ARGET of a Styrene Monomer onto Modified Natural Rubber Latex as an Initiator

Quentin Tévenot and Seiichi Kawahara\*

*Langmuir*, Articles ASAP (Article), Publication Date (Web): May 13, 2021

<https://doi.org/10.1021/acs.langmuir.1c00168>

・天然ゴムの繰り返しの一部をプロモ化してさらに ATRP-ARGET で PS をグラフト化、

### Adaptable Reversibly Interlocked Networks from Immiscible Polymers Enhanced by Hierarchy-Induced Multilevel Energy Consumption Mechanisms

Yang You, Min Zhi Rong,\* and Ming Qiu Zhang\*

*Macromolecules*, Articles ASAP (Article), Publication Date (Web): May 14, 2021

<https://doi.org/10.1021/acs.macromol.1c00289>

・非相溶のネットワーク同士をクリック反応で架橋して機械強度の向上に伴う階層的なエネルギー散逸機構

### Ethylene Copolymerization with Limonene and $\beta$ -Pinene: New Bio-Based Polyolefins Prepared by Coordination Polymerization

Kousei Kawamura and Kotohiro Nomura\*

<https://doi.org/10.1021/acs.macromol.1c00559>

・リモネンや  $\beta$ -ピネンをエチレンと Ti メタロセン触媒で共重合してランダム共重合体を合成、触媒活性を評価

### Polybenzoxazines: a sustainable platform for the design of fast responsive and catalyst-free vitrimers based on transesterification exchanges

Antoine Adjaoud, Acerina Trejo-Machin, Laura Puchot and Pierre Verge \*

*Polym. Chem.*, 2021, Advance Article; The article was first published on 14 May 2021

<https://doi.org/10.1039/D1PY00324K>

・無触媒エステル交換反応が可能な動的架橋系をポリエステル組み込んだポリベンゾオキサジン硬化系で設計

### Synthesis and properties of helically-folded poly(arylenediethynylene)s

Michihisa Toya, Hideto Ito \* and Kenichiro Itami

*Polym. Chem.*, 2021, Advance Article; The article was first published on 10 May 2021

<https://doi.org/10.1039/D1PY00144B>

・オリゴエーテル鎖を側鎖にもつ数種のジインアリアル化合物を重合して構造の明確なフォルダマーを合成

### One-Shot Preparation of Thermoresponsive Comb Polyurethane Hydrogel for Both Excellent Toughness and Large Volume Switching

Daisuke Aoki and Hiroharu Ajiro\*

*Macromol. Rapid Commun.* 2021, 2100128, Version of Record online:14 May 2021

<https://doi.org/10.1002/marc.202100128>

・生分解性と熱応答性のくし形ポリウレタンハイドロゲルをワンポット合成、高強度と大きな体積変化を両立

### Kinetic analysis of continuous reaction data for RAFT and free radical copolymerization with acrylic and styrenic

## monomers

Julia S. Siqueira, Fabio H. Florenzano, Wayne F. Reed

*Polymer*, Volume 226, 4 June 2021, 123798, Available online 22 April 2021.

<https://doi.org/10.1016/j.polymer.2021.123798>

- ・ AAm と NaSS の RAFT 重合の速度(各モノマー消費)を解析して共重合速度や組成の変化を分析、結論は曖昧？

## Bio-based & Biomedical Polymers

### Mussel-Inspired, Injectable Polyurethane Tissue Adhesives Demonstrate In Situ Gel Formation under Mild Conditions

Xin Zhao, Hao Ming, Yanjun Wang, Feng Luo,\* Zhen Li, Jiehua Li, Hong Tan,\* and Qiang Fu

*ACS Applied Bio Materials*, Articles ASAP (Article), Publication Date (Web): May 13, 2021

<https://doi.org/10.1021/acsabm.1c00451>

- ・ DOPA 型構造(カテコール)を用いた流動可能なポリウレタンを in situ でリシンと反応させて体内ゲル化を想定

### Bio-Based Hydrogel Transducer for Measuring Human Motion with Stable Adhesion and Ultrahigh Toughness

Guangyu Wang, Qian Zhang, Qian Wang, Lubin Zhou, and Guanghui Gao\*

*ACS Applied Materials & Interfaces*, Articles ASAP, Publication Date (Web): May 14, 2021

<https://doi.org/10.1021/acsami.1c05098>

- ・ アクリルアミドにカゼイン/変性キトサンを組み合わせ高強度ゲルを設計で接着性の応力センサー材料開発

### In Vivo Imaging of Allografted Glial-Restricted Progenitor Cell Survival and Hydrogel Scaffold Biodegradation

Shreyas Kuddannaya, Wei Zhu, Chengyan Chu, Anirudha Singh, Piotr Walczak, and Jeff W. M. Bulte\*

*ACS Applied Materials & Interfaces*, Articles ASAP, Publication Date (Web): May 12, 2021

<https://doi.org/10.1021/acsami.1c03415>

- ・ ヒアルロン酸ゲルを用いたグリア制限前駆(GRP)細胞の生体内イメージング用材料を開発、体内分解性も検討

### Synthesis of High-Performance Lignin-Based Inverse Thermoplastic Vulcanizates with Tailored Morphology and Properties

Nihal Kanbargi,\* Monojoy Goswami, Liam Collins, Logan T Kearney, Christopher C Bowland, Keonhee Kim, Kalavathy Rajan, Nicole Labbe,\* and Amit K Naskar\*

*ACS Applied Polymer Materials*, Articles ASAP (Article), Publication Date (Web): May 13, 2021

<https://dx.doi.org/10.1021/acsapm.0c01387>

- ・ リグニンとアクリロニトリル-ブタジエンゴムから再生可能な共連続複合材料を作製するための反応性架橋剤

## Polymer Materials

### Recyclable and Fluorescent Epoxy Polymer Networks from Cardanol Via Solvent-Free Epoxy-Thiol Chemistry

Yanzi Ke, Xiangyu Yang, Qian Chen, Junqi Xue, Zhijian Song, Yuehong Zhang,\* Samy A. Madbouly, Ying Luo,\* Mei Li, Qingwen Wang, and Chaoqun Zhang\*

*ACS Applied Polymer Materials*, Articles ASAP (Article), Publication Date (Web): May 12, 2021

<https://doi.org/10.1021/acsapm.1c00284>

- ・ バイオ由来原料のカルダノールから多官能エポキシを合成して多官能チオールで熱硬化、動的架橋構造導入

### One-Component DNA Mechanoprobes for Facile Mechanosensing in Photopolymerized Hydrogels and Elastomers

Guido Creusen, Ricarda Sophia Schmidt, and Andreas Walther\*

*ACS Macro Lett.* 2021, 10, 671-678, Articles ASAP (Letter), Publication Date (Web): May 13, 2021

<https://doi.org/10.1021/acsmacrolett.1c00211>

- ・ ループ型 DNA 断片に発光/消光部位を導入したポリマーを変形したとき応力集中してループが解けて局所発光

### Super Stretchable and Durable Electroluminescent Devices Based on Double-Network Ionogels

Hiep Dinh Xuan, Bernard Timothy, Ho-Yeol Park, Tuyet Nhi Lam, Dowan Kim, Yeonjeong Go, Jongyoun Kim, Youngu Lee, Sung Il Ahn, Sung-Ho Jin,\* and Jinhwan Yoon\*

*Adv. Mater.* 2021, 2008849; Version of Record online:13 May 2021

<https://doi.org/10.1002/adma.202008849>

- ・ キトサンとアクリルアミドのアミノ基をトリリン酸とグルタルアルデヒドで架橋して高強度発光ゲルを設計

## Polymer Structure & Physics

### Thermal Stability and Nucleation Efficacy of Shear-Induced Pointlike and Shishlike Crystallization Precursors

Katalee Jariyavidyanont,\* Andreas Janke, Muhammad Tariq, Maria Laura Di Lorenzo, Christoph Schick, and René Androsch\*

*ACS Macro Lett.* 2021, 10, 684-689, Articles ASAP (Letter), Publication Date (Web): May 13, 2021

- ・ ずり応力誘起型 Pointlike and Shishlike 結晶化過程の核形成速度/機構解析(shish はシシケバブのシシと同じ)

### **Molecular Weight Dependence of Block Copolymer Micelle Fragmentation Kinetics**

Julia T. Early, Alison Block, Kevin G. Yager, and Timothy P. Lodge\*

*Journal of the American Chemical Society*, Articles ASAP (Article), Publication Date (Web): May 14, 2021

<https://doi.org/10.1021/jacs.1c02147>

- ・分子量の異なる PB/PEO ブロック共重合体を使ってイオン液体中でのミセル構造変化を時間分解 SAX で追跡

### **Partition of Block Copolymers in Phase-Separating Polymer Solutions**

Itaru Asano and Takahiro Sato\*

*Langmuir*, Articles ASAP (Article), Publication Date (Web): May 13, 2021

<https://doi.org/10.1021/acs.langmuir.1c00704>

- ・溶液中での AB 型ブロック共重合体の相分離を格子モデルに基づいて理論解析、PS/PEG/CHCl<sub>3</sub> 系実験値と対比

### **Biaxial Loading Effects on Strain Energy Release Rate and Crack-Tip Strain Field in Elastic Hydrogels**

Thanh-Tam Mai and Kenji Urayama\* Cite This:

*Macromolecules*, Articles ASAP (Article), Publication Date (Web): May 14, 2021

<https://doi.org/10.1021/acs.macromol.1c00445>

- ・弾性ヒドロゲルの歪エネルギー散逸速度と亀裂先端での応力分布に対する 2 軸での応力印加の効果を解析

### **Spinodal decomposition of chemically fueled polymer solutions**

Jonas Heckel, Fabio Batti, Robert T. Mathers\* and Andreas Walther

*Soft Matter*, 2021, Advance Article, The article was first published on 04 May 2021

<https://doi.org/10.1039/D1SM00515D>

- ・ポリノルボルネンの溶液に縮合剤を加えて側鎖カルボン酸間での無水物形成に伴うスピノーダル相分離誘発

### **Molecular dynamics simulations of ultrathin PMMA films**

Lili Zhang \*, Norman A. Fleck \*

*Polymer*, Volume 226, 4 June 2021, 123748

<https://doi.org/10.1016/j.polymer.2021.123748>

- ・PMMA 超薄膜の分子運動の単純なモデルによる MD シミュレーション、過去の実験結果との照合も一部あり

## **Adhesion & Interface Science**

### **Ultrasound-Stimulated PVA Microbubbles for Adhesive Removal from Cellulose-Based Materials: A Groundbreaking Low-Impact Methodology**

Alessia D'Andrea, Leonardo Severini, Fabio Domenici,\* Sultan Dabagov, Valeria Guglielmotti, Dariush Hampai, Laura

Micheli, Ernesto Placidi, Mattia Titubante, Claudia Mazzuca,\* Gaio Paradossi, and Antonio Palleschi

*ACS Applied Materials & Interfaces*, Articles ASAP, Publication Date (Web): May 14, 2021

<https://doi.org/10.1021/acsami.1c01892>

- ・PVA ゲルを用いて超音波照射で発生したマイクロバブルを利用して紙に残った接着剤をきれいに剥離除去

### **Polymer Coupling via Hetero-Disulfide Exchange and Its Applications to Rewritable Polymer Brushes**

Xuan Ming Sim, Chen Chen, and Atsushi Goto\*

*ACS Applied Materials & Interfaces*, Articles ASAP, Publication Date (Web): May 13, 2021

<https://doi.org/10.1021/acsami.1c07195>

- ・RCMP で合成した末端ヨウ素ポリマーを末端 SH に変換して機材表面 SH との反応で可逆的に表面特性を制御

## **General Chemistry & Others**

### **Polypeptide organic radical batteries.**

Tan P. Nguyen, Alexandra D. Easley, Nari Kang, Sarosh Khan, Soon-Mi Lim, Yohannes H. Rezenom, Shaoyang Wang, David K.

Tran, Jingwei Fan, Rachel A. Letteri, Xun He, Lu Su, Cheng-Han Yu, Jodie L. Lutkenhaus, Karen L. Wooley, *Nature* **593**, 61-66

(2021). Issue Date: 06 May 2021, Published online: 5 May 2021, <https://doi.org/10.1038/s41586-021-03399-1>

### **Aromatic hydrocarbon belts**

Guo, Q.-H., Qiu, Y., Wang, M.-X., Stoddart, J. F., *Nat. Chem.* **13**, 402-419 (2021) Issue Date: May 2021, Published: 15 April

2021, <https://doi.org/10.1038/s41557-021-00671-9>

### **Synthesis of a zigzag carbon nanobelt.**

Kwan Yin Cheung, Kosuke Watanabe, Yasutomo Segawa & Kenichiro Itami, *Nat. Chem.* **13**, 255-259 (2021). Issue Date:

March 2021, Published: 25 January 2021, <https://doi.org/10.1038/s41557-020-00627-5>

May 24, 2021

## Reviews

### 2D Materials for Skin-Mountable Electronic Devices

Jejung Kim, Yongjun Lee, Minpyo Kang, Luhing Hu, Songfang Zhao, and Jong-Hyun Ah  
*Advanced Materials*, Version of Record online:16 May 2021

<https://doi.org/10.1002/adma.202005858>

- ・皮膚取り付け型電子デバイス用材料の伸縮/透過、機械/電気特性、生体適合性からバイオ応用の具体例まで

### Dissociations of free radicals to generate protons, electrophiles or nucleophiles: role in DNA strand breaks

John C. Walton

*Chem. Soc. Rev.*, 2021, Advance Article; The article was first published on 21 May 2021

<https://doi.org/10.1039/D1CS00193K>

- ・1990年代に研究が飛躍的に進展したDNAラジカル切断(高速ホール移動含む)損傷メカニズム関連の進捗状況

### When polymerization meets coordination-driven self-assembly: metallo-supramolecular polymers based on supramolecular coordination complexes

Yu Zhu, Wei Zheng, Wei Wang\* and Hai-Bo Yang

*Chem. Soc. Rev.*, 2021, Advance Article; The article was first published on 21 May 2021

<https://doi.org/10.1039/D0CS00654H>

- ・有機金属配位系環状化合物周辺をポリマー修飾することで2D/3D集積体形成を制御できマクロな形態変化も

### Metal phosphate catalysts to upgrade lignocellulose biomass into value-added chemicals and biofuels

Atal Shivhare, Abhinav Kumar and Rajendra Srivastava

*Green Chem.*, 2021, Advance Article; The article was first published on 26 Apr 2021

<https://doi.org/10.1039/D1GC00790D>

- ・金属ホスフェート触媒でグルコースやリグニン原料から誘導できるポリマー合成原料の新しいライブラリー

### Chemolytic depolymerisation of PET: a review (The themed collection: [Green Chemistry Reviews](#))

Elaine Barnard, Jose Jonathan Rubio Arias and Wim Thielemans

*Green Chem.*, 2021, Advance Article; The article was first published on 19 May 2021

<https://doi.org/10.1039/D1GC00887K>

- ・合成化学者とは異なる視点のPETのケミカルリサイクルに関する論点あり、普段見かけないスタイルの図も

### 2D nanosheet enabled thin film nanocomposite membranes for freshwater production – a review

Deepak Surendhra Mallya, Ludovic F. Dumeé, Shobha Muthukumaran, Weiwei Lei and Kanagaratnam Baskaran

*Mater. Adv.*, 2021, Advance Article; The article was first published on 12 May 2021

<https://doi.org/10.1039/D1MA00256B>

- ・薄膜ナノコンポジット総論と水分離への応用現状など、COF含めた2Dナノシートの新しい用途のひとつ？

### Molecular Recognition Driven Bioinspired Directional Supramolecular Assembly of Amphiphilic (Macro)molecules and Proteins

Amrita Sikder, Saptarshi Chakraborty, Priya Rajdev, Pradip Dey, and Suhrit Ghosh

*Accounts of Chemical Research*, Articles ASAP (Article), Publication Date (Web): May 20, 2021

- ・ナフタレンジイミド構造の強いスタッキングを利用した両親媒性分子集合体の構造制御と生体応用の可能性

### Open Problems in Wetting Phenomena: Pinning Retention Forces

Rafael Tadmor\*

*Langmuir*, Articles ASAP (Invited Feature Article), Publication Date (Web): May 19, 2021

<https://doi.org/10.1021/acs.langmuir.0c02768>

- ・ピン止め効果に対する従来提唱された理論の相互矛盾や不一致に対して問題点を整理して著者の解釈を展開

### Cement Interfaces: Current Understanding, Challenges, and Opportunities

Ozge Heinz\* and Hendrik Heinz\*

*Langmuir*, Articles ASAP (Perspective), Publication Date (Web): May 17, 2021

<https://doi.org/10.1021/acs.langmuir.1c00617>

- ・複合材料としてのセメントとコンクリートの界面に関する情報は他の複合材料系での設計の際のヒントにも

## Polymer Synthesis

### Cyclic allylic sulfide based photopolymer for holographic recording showing high refractive index modulation

Paola Galli, Richard A. Evans, Chiara Bertarelli, Andrea Bianco

*J. Polym Sci.* 2021; Version of Record online: 07 May 2021

<https://doi.org/10.1002/pol.20210192>

・開環重合で反応性メチレン基を主鎖に導入して後反応で主鎖切断せずに官能基を付加できる系で屈折率制御

### On-Surface Synthesis of Giant Conjugated Macrocycles

Cunrui Fan, Bangjin Sun, Zhanbo Li, Jiwei Shi, Tao Lin,\* Jian Fan,\* and Ziliang Shi

*Angew. Chem. Int. Ed.* 2021, Version of Record online: 17 May 2021

<https://doi.org/10.1002/anie.202104090>

・Ag(111)表面上吸着分子の縮合反応で内径 7.1nm サイズ大環状共役ポリマーの選択的合成過程を STM 観察

### Homo- and co-polymerisation of di(propylene glycol) methyl ether methacrylate – a new monomer

Anna P. Constantinou, Georgios Patias, Birsen Somuncuoğlu, Toby Brock,a Daniel W. Lester, David M. Haddleton and Theoni K. Georgiou

*Polym. Chem.*, 2021, Advance Article; The article was first published on 12 May 2021

<https://doi.org/10.1039/D1PY00444A>

・オリゴプロピレングリコール側鎖メタクリレートモノマーがこれまで合成されていなかったことに驚き

### Rational synthesis of novel biocompatible thermoresponsive block copolymer worm gels

Deborah L. Beattie, Oleksandr O. Mykhaylyk, Anthony J. Ryan and Steven P. Armes

*Soft Matter*, 2021, Advance Article; The article was first published on 17 May 2021

<https://doi.org/10.1039/D1SM00460C>

・RAFT 重合/PISA で MPC とメタクリル酸 2-ヒドロキシプロピルからブロック共重合体集合体構造を精密制御

### “All-PVC” Flexible Poly(vinyl Chloride): Nonmigratory Star-Poly(vinyl Chloride) as Plasticizers for PVC by RAFT Polymerization

Zhonghe Sun, Xing Mi, Yanan Yu, Wencheng Shi, Anchao Feng,\* Graeme Moad,\* and San H. Thang\*

*Macromolecules*, Articles ASAP (Article), Publication Date (Web): May 21, 2021

<https://doi.org/10.1021/acs.macromol.1c00616>

・ザンテート系 RAFT 剤で低 T<sub>g</sub> の 3/4 分岐星型 PVC オリゴマーを合成し、可塑剤として PVC にブレンド

### Survey of Catalysts for Frontal Ring-Opening Metathesis Polymerization

Benjamin A. Suslick, Katherine J. Stawiasz, Justine E. Paul, Nancy R. Sottos, and Jeffrey S. Moore\*

*Macromolecules*, Articles ASAP (Article), Publication Date (Web): May 17, 2021

<https://doi.org/10.1021/acs.macromol.1c00566>

・9種類のグラブス触媒を用いて DCP と ENB 共重合系フロンタル ROMP の重合活性やポリマーT<sub>g</sub> を評価

### Bio-based Materials

#### Sustainable chemo-enzymatic synthesis of glycerol carbonate (meth)acrylate from glycidol and carbon dioxide enabled by ionic liquid technologies

Rocio Villa,a Raul Porcar, Susana Nieto, Antonio Donaire, Eduardo Garcia-Verdugo, Santiago V. Luis and Pedro Lozano

*Green Chem.*, 2021, Advance Article; The article was first published on 06 May 2021

<https://doi.org/10.1039/D1GC01096D>

・イオン液体利用でメタクリル酸グリセロールカーボネートの新規合成法を開発、重合/ポリマー機能化は今後

#### p-Cymene: A Sustainable Solvent that is Highly Compatible with Direct Arylation Polymerization (DARp)

Liwei Ye and Barry C. Thompson\*

*ACS Macro Lett.* 2021, 10, 714-719; Articles ASAP (Letter), Publication Date (Web): May 21, 2021

<https://doi.org/10.1021/acsmacrolett.1c00274>

・近い将来には反応に使用する溶媒の種類も強く制約を受けて大きく変わらざるを得ない事を痛感させられる

### Polymer Materials

#### Molecular Dynamic Investigation of the Structural and Mechanical Properties of Off-Stoichiometric Epoxy Resins

Chang Woon Jang,\* Jin Ho Kang, Frank L. Palmieri, Tyler B. Hudson, Charlotte J. Brandenburg, and John W. Lawson

*ACS Applied Polymer Materials*, Articles ASAP (Article), Publication Date (Web): May 21, 2021

<https://doi.org/10.1021/acsapm.1c00087>

・エポキシ硬化物ネットワーク構造と物性(弾性率/密度/ポアソン比)へのエポキシ/硬化剤比の影響を MD 解析

#### A Physically Cross-Linked Sodium Alginate–Gelatin Hydrogel with High Mechanical Strength

Lini Wang, Hui Jie Zhang,\* Xueqian Liu, Yun Liu, Xing Zhu, Xinhua Liu, and Xiangyu You\*

*ACS Applied Polymer Materials*, Articles ASAP (Article), Publication Date (Web): May 21, 2021

<https://doi.org/10.1021/acsapm.1c00404>

・アルギン酸 Na/ゼラチンゲル(79%含水)強度 0.46MPa 伸び 240%で SS 曲線ヒステリシスなし、DN or not ?

### Living Polymer Networks Based on a RAFT Cross-Linker: Toward 3D and 4D Printing Applications

Ali Bagheri,\* Honglei Ling, Chris William Anderson Bainbridge, and Jianyong Jin\*

*ACS Applied Polymer Materials*, Articles ASAP (Article), Publication Date (Web): May 19, 2021

<https://doi.org/10.1021/acsapm.1c00048>

・架橋剤に RAFT 構造を組み込んで 3D プリンター応用、Zn ポルフィリン重合開始系で LED633nm 赤色光利用

### Antimicrobial PDMS Surfaces Prepared through Fast and Oxygen-Tolerant SI-SARA-ATRP, Using Na<sub>2</sub>SO<sub>3</sub> as a Reducing Agent

Christian Andersen, Libor Zverina, Koosha Ehtiaty, Esben Thormann, Hanne Mordhorst, Sünje J. Pamp, Niels J. Madsen, and Anders E. Daugaard\*

*ACS Omega*, Articles ASAP (Article), Publication Date (Web): May 21, 2021

<https://doi.org/10.1021/acsomega.1c01611>

・還元剤として Na<sub>2</sub>SO<sub>3</sub> 使用の SARA-ATRP で PDMS 上に PDMAEMA ブラシポリマー作製、バイオフィーム特性

### Solid-State Chemical Transformations to Enhance Gas Capture in Benzoxazine-Linked Conjugated Microporous Polymers

Mohamed Gamal Mohamed, Tzu-Chun Chen, and Shiao-Wei Kuo\*

*Macromolecules*, Articles ASAP (Article), Publication Date (Web): May 21, 2021

<https://doi.org/10.1021/acs.macromol.1c00736>

・テトラエチレン誘導体間の縮合でベンゾオキサジン構造含む多孔体ポリマーを合成、ガス吸蔵以外も期待?

### Polymer Structure & Physics

#### Fragility of short-chain poly(lactic acid)s derivatives by combining dielectric spectroscopy and fast scanning calorimetry

Sareh Mahmoudian Moghaddam, Blandine Quelennec, Nicolas Delpouve, Bienvenu Atawa, Laurent Delbreilh, Allisson Saiter-Fourcin, Elisa Passaglia, Stefano Fiori,

*J. Polym Sci.* 2021; Version of Record online: 20 May 2021

<https://doi.org/10.1002/pol.20210129>

・PLA オリゴマーの誘電緩和で  $\alpha, \beta, \gamma$  緩和がこの順で分子量依存性が弱くなるという予想と一致する実験結果

#### Chain and Solvent Dynamics in Polymer Membrane Films Supported on a Polymeric Substrate

Rafikul Islam, Sriramvignesh Mani, and Rajesh Khare\*

*ACS Applied Polymer Materials*, Articles ASAP (Article), Publication Date (Web): May 19, 2021

<https://doi.org/10.1021/acsapm.1c00360>

・多孔質ポリマー支持膜の界面近傍でのポリアクリル酸と水のダイナミクスを MD 解析して Tg/MSD などを議論

#### Flower-like Photonic Hydrogel with Superstructure Induced via Modulated Shear Field

Ya Nan Ye, Md Anamul Haque, Akane Inoue, Yoshinori Katsuyama, Takayuki Kurokawa,\* and Jian Ping Gong\*

*ACS Macro Lett.* 2021, 10, 708-713; Articles ASAP (Letter), Publication Date (Web): May 20, 2021

<https://doi.org/10.1021/acsmacrolett.1c00178>

・フォトニックゲルにせん断応力負荷する際のずり速度の違いでゲル中の高次構造が変化して花びら状形態に

#### Effect of Block Copolymer Composition and Homopolymer Molecular Weight on Ordered Bicontinuous Double-Diamond Structures in Binary Blends of Polystyrene-Polyisoprene Block Copolymer and Polyisoprene Homopolymer

Hideaki Takagi\* and Katsuhiro Yamamoto\*

*Macromolecules*, Articles ASAP (Article), Publication Date (Web): May 19, 2021

<https://doi.org/10.1021/acs.macromol.1c00429>

・PS/PI ブロック共重合体と PI ホモポリマーのブレンド系で共連続二重ダイヤモンド構造形成を散乱実験で確認

#### Swelling Dynamics of a Disk-Shaped Gel

Xingkun Man\* and Masao Doi\*

*Macromolecules*, Articles ASAP (Article), Publication Date (Web): May 15, 2021

<https://doi.org/10.1021/acs.macromol.1c00623>

・ディスク状ゲル膨潤のダイナミクスを直径/厚さ方向で理論考察、拡散に関する問題点(課題)も新たに指摘?

### Crystal Engineering & Liquid Crystals

#### Construction of Interlayer Conjugated Links in 2D Covalent Organic Frameworks via Topological Polymerization

Yuhao Zhu, Pengpeng Shao, Linyu Hu, Chao Sun, Jie Li, Xiao Feng,\* and Bo Wang

*Journal of the American Chemical Society*, Articles ASAP (Communication), Publication Date (Web): May 19, 2021

<https://doi.org/10.1021/jacs.1c02932>

・ジフェニルジアセチレン構造を含む COF を反応して共役系拡張して電気特性を制御、共役構造詳細は未解明

May 31, 2021

## Reviews

### Properties and Applications of Stimuli-Responsive Diacetylenes

Amy V. Hall, Osama M. Musa, and Jonathan W. Steed\*

*Crystal Growth & Design*, Articles ASAP (Review), Publication Date (Web): May 10, 2021

<https://doi.org/10.1021/acs.cgd.1c00300>

・ジアセチレン関連化合物の結晶構造/スタッキング設計/反応/物性/機能化全般を過去から現在まで網羅

### Polymers with advanced structural and supramolecular features synthesized through topochemical polymerization

Kuntrapakam Hema, Arthi Ravi, Cijil Raju and Kana M. Sureshan

*Chem. Sci.*, 2021, **12**, 5361-5380; The article was first published on 23 Feb 2021

<https://doi.org/10.1039/D0SC07066A>

・ジアセチレン総説、著者らは同時期に Chem Soc Rev にも類似テーマの総説を発表済みで一部内容重複

### Graphene Quantum Dots (GQDs) for Bioimaging and Drug Delivery Applications: A Review

Manik Chandra Biswas,\* Md Tariqul Islam, Pranab Kumar Nandy, and Md Milon Hossain

*ACS Materials Lett.* 2021, 3, 889-911, Articles ASAP (Review), Publication Date (Web): May 26, 2021

<https://doi.org/10.1021/acsmaterialslett.0c00550>

・グラフェン系量子ドットのバイオイメージングと DDS 応用、細胞毒性に関しても最後に簡単に記述あり

### Nonequilibrium Processes in Polymer Membrane Formation: Theory and Experiment

Marcus Müller\* and Volker Abetz\*

*Chemical Reviews*, Articles ASAP (Review), Publication Date (Web): May 25, 2021

<https://doi.org/10.1021/acs.chemrev.1c00029>

・非対称/多孔性高分子膜(ホモ/ブロックポリマー)の非平衡形成プロセスの理論や実験についての総説

### Membrane Mimetic Chemistry in Artificial Cells

Jacob A. Vance and Neal K. Devaraj\*

*Journal of the American Chemical Society*, Articles ASAP (Perspective), Publication Date (Web): May 20, 2021

<https://doi.org/10.1021/jacs.1c03436>

・脂質膜のダイナミクスを考慮してどのようにシステムを人工的に再構築すればよいかを考えるヒントが

### Liquid Phase Electron Microscopy Provides Opportunities in Polymer Synthesis and Manufacturing

Wyeth Gibson and Joseph P. Patterson\*

*Macromolecules*, Articles ASAP (Perspective), Publication Date (Web): May 25, 2021

<https://doi.org/10.1021/acs.macromol.0c02710>

・高出力電子顕微鏡で液体サンプルの重合/分解/架橋/表面グラフトなどを直接観察する手法の利点を強調

### Recent trends on burn wound care: hydrogel dressings and scaffolds

Yingxia Yao, Andi Zhang, Congshan Yuan, Xiguang Chen and Ya Liu

*Biomater. Sci.*, 2021, Advance Article, The article was first published on 28 May 2021

<https://doi.org/10.1039/D1BM00411E>

・やけど治療のためのヒドロゲルの応用と今後の可能性をやけど処理の基本的な事項の説明も含めて解説

### Recent progress in polymer hydrogel bioadhesives

Xinjie Pei, Jintao Wang, Yang Cong, Jun Fu

*J. Polym. Sci.*, First published: 25 May 2021

<https://doi.org/10.1002/pol.20210249>

・組織接着/止血/センサー固定など接着用のヒドロゲルの機械特性/生物学的相互作用や応用の最近の展開

## Polymer Synthesis

### Phosphine Oxide-Containing Multifunctional Polymer via RAFT Polymerization and Its High-Density Post-Polymerization Modification in Water

Jian Sun, Chang Wang, Yu-Lin Hong, Zhi-Wei Tan, and Cheng-Mei Liu\*

*ACS Applied Polymer Materials*, Articles ASAP (Article), Publication Date (Web): May 27, 2021

<https://doi.org/10.1021/acsapm.1c00403>



- ・ホスホン酸を含むスチレンの RAFT 重合でポリマー側鎖に官能基導入後にエステル化してポリマー機能化

### **Controlling the Particle Size in Surfactant-Free Latexes from $\omega$ -Propenyl Oligomers Obtained through Catalytic Chain Transfer Polymerization**

Arkadios Marathianos, Alan M. Wemyss, Evelina Liarou, Joseph R. Jones, Ataula Shegiwal, James S. Town, Daniel W. Lester, Youngguang Li, and David M. Haddleton

*ACS Applied Polymer Materials*, Articles ASAP (Article), Publication Date (Web): May 24, 2021

<https://doi.org/10.1021/acsapm.1c00366>

- ・触媒的連鎖移動重合(CCTP)で末端不飽和ポリメタクリル酸を乳化剤フリー分散重合系で微粒子サイズ制御

### **Molecular Dynamic Investigation of the Structural and Mechanical Properties of Off-Stoichiometric Epoxy Resins**

Chang Woon Jang,\* Jin Ho Kang, Frank L. Palmieri, Tyler B. Hudson, Charlotte J. Brandenburg, and John W. Lawson\*

*ACS Applied Polymer Materials*, Articles ASAP (Article), Publication Date (Web): May 21, 2021

<https://doi.org/10.1021/acsapm.1c00087>

- ・エポキシ/硬化剤比と架橋構造(密度/収縮率/クラスター分布)と物性(弾性率/ポアソン比/熱膨張率)の関係

### **Noncovalent Protection for Direct Synthesis of $\alpha$ -Amino- $\omega$ -hydroxyl Poly(ethylene oxide)**

Ye Chen, Pengfei Zhang, Shan Liu, David Pahovnik, Ema Žagar, Junpeng Zhao,\* and Guangzhao Zhang

*ACS Macro Lett.* 2021, 10, 737-743, Articles ASAP (Letter), Publication Date (Web): May 28, 2021

<https://doi.org/10.1021/acsmacrolett.1c00316>

- ・共有結合型保護基を使用しない系(BEt<sub>3</sub> 使用)で末端アミノ基修飾した PEG 鎖を合成反応経路を新規開発

### **Polystyrene Functionalized with Diacylacetonitrile for the Visualization of Mechanoradicals and Improved Thermal Stability**

Takumi Yamamoto, Daisuke Aoki, and Hideyuki Otsuka\*

*ACS Macro Lett.* 2021, 10, 744-748, Articles ASAP (Letter), Publication Date (Web): May 28, 2021

<https://doi.org/10.1021/acsmacrolett.1c00352>

- ・従来の 2 量体ラジカル解離平衡型を進化させて切断ポリマーラジカル分子内の水素引き抜き利用で発光

### **Effect of metallosupramolecular polymer concentration on the synthesis of poly[n] catenanes**

Marissa M. Tranquilli, Qiong Wu and Stuart J. Rowan

*Chem. Sci.*, 2021, Advance Article, The article was first published on 26 May 2021

<https://doi.org/10.1039/D1SC02450G>

- ・金属触媒を用いる閉環反応を伴う重合で合成するポリカテナンの構造を解析して重合条件との関係説明

### **Higher-order interfiber interactions in the self-assembly of benzene-1,3,5-tricarboxamide-based peptides in water**

Oleksandr Zagorodko, Tetiana Melnyk, Olivier Rogier, Vicent J. Nebot\* and María J. Vicent

*Polym. Chem.*, 2021, Advance Article, The article was first published on 28 May 2021

<https://doi.org/10.1039/D1PY00304F>

- ・アミド間の水素結合を伴うディスク分子積層型の超分子ポリマーの多重らせん構造体間での相互作用

## **Bio-based Materials**

### **Biobased Poly(3-hydroxybutyrate)/Starch/Cellulose Nanofibrils for Nutrients Coatings**

Déborá Franca,\* Luciana M. Angelo, Claudinei F. Souza, and Roselena Faez\*

*ACS Applied Polymer Materials*, Articles ASAP (Article), Publication Date (Web): May 26, 2021

<https://doi.org/10.1021/acsapm.1c00418>

- ・最近注目のポリ(3-ヒドロキシブチレート)(PHB)とデンプンをセルロースナノファイバー(CNF)と複合化

### **Toward Taming the Chemical Reversibility of Perfluoropyridine through Molecular Design with Applications to Pre- and Postmodifiable Polymer Architectures**

Matthew B. Houck, Timothy J. Fuhrer, Cole R. Phelps, Loren C. Brown, and Scott T. Iacono\*

*Macromolecules*, Articles ASAP (Article), Publication Date (Web): May 28, 2021

<https://doi.org/10.1021/acs.macromol.1c00990>

- ・反応性(ペルフルオロピリジン側鎖)モノマーの ROMP で官能基化と重合のどちらが先かを比較検討

## **Biomedical Polymers**

### **Bio-Inspired Amphoteric Polymer for Triggered-Release Drug Delivery on Breast Cancer Cells Based on Metal Coordination**

Pin-Chun Chen, James J. Lai,\* and Chun-Jen Huang\*

*ACS Applied Materials & Interfaces*, Articles ASAP, Publication Date (Web): May 25, 2021

<https://doi.org/10.1021/acscami.1c03191>

・RAFT 重合で合成した MPC ポリマーブロック共重合体を Fe イオン配位でナノ錯体微粒化して DDS 利用

### **Rational Design of Poly(disulfide)s as a Universal Platform for Delivery of CRISPR-Cas9 Machineries toward Therapeutic Genome Editing**

Jiajing Guo, Tao Wan, Bowen Li, Qi Pan, Huhu Xin, Yayu Qiu, and Yuan Ping\*

*ACS Central Science*, Articles ASAP (Research Article), Publication Date (Web): May 27, 2021

<https://doi.org/10.1021/acscentsci.0c01648>

・環状ジスルフィドモノマー(リポ酸誘導体)のポリマーの構造を改良してゲノム編集技術 CRISPR-Cas9 応用

### **Polymer Materials**

#### **Chiral Silica with Preferred-Handed Helical Structure via Chiral Transfer**

Kei Manabe, Sung-Yu Tsai, Satoshi Kuretani, Satoshi Kometani, Katsuyuki Ando, Yoshihiro Agata, Noboru Ohta, Yeo-Wan Chiang, I-Ming Lin, Syuji Fujii, Yoshinobu Nakamura, Yu-Ning Chang, Yuta Nabaie, Teruaki Hayakawa, Chien-Lung Wang, Ming-Chia Li,\* and Tomoyasu Hirai\*

*JACS Au* 2021, 1, 375-379, Publication Date: April 1, 2021

<https://doi.org/10.1021/jacsau.1c00098>

・新ジャーナル、側鎖 POSS 含有イソタクチック PMMA を不斉環境の焼結でキラルシリカ合成、驚異的結果

#### **Reversible Cycling of Graphite Electrodes in Propylene Carbonate Electrolytes Enabled by Ethyl Isothiocyanate**

Xiaolong Li, Limin Guo,\* Jing Li, Erkang Wang,\* Tianfu Liu, Guoxiong Wang, Ke Sun,\* Chuntai Liu, and Zhangquan Peng\*

*ACS Applied Materials & Interfaces*, Articles ASAP, Publication Date (Web): May 25, 2021

<https://doi.org/10.1021/acscami.1c04607>

・イソチオシアネート重合による機能性ポリマー材料開発、最近ではイソシアネート重合を見かけることは希

#### **Chromatic Dendrimer/Polydiacetylene Nanoparticles**

Reut Israeli, Sofiya Kolusheva, Pablo Mateos-Gil, Electra Gizeli, and Raz Jelinek\*

*ACS Applied Polymer Materials*, Articles ASAP (Article), Publication Date (Web): May 25, 2021

<https://doi.org/10.1021/acscami.1c00053>

・PDA を市販デンドリマー(Boltorn W3000,非イオン性の両親媒性ポリマーで不飽和含む)と複合して材料化

#### **Bioinspired Conductive Hydrogel with Ultrahigh Toughness and Stable Antiswelling Properties for Articular Cartilage Replacement**

Shuai Zhang, Yunlong Li, Hangjing Zhang, Guojun Wang, Hao Wei, Xinyue Zhang,\* and Ning Ma\*

*ACS Materials Lett.* 2021, 3, 807-814, Articles ASAP (Letter), Publication Date (Web): May 19, 2021

<https://doi.org/10.1021/acsmaterialslett.1c00203>

・PVA とフィチン酸ナトリウム(myo-イノシトールヘキサキス(リン酸二水素)の Na 塩)複合化で材料特性向上

#### **Gas Transport in Interacting Planar Brushes**

Sabin Adhikari, Arash Nikoubashman, Ludwik Leibler, Michael Rubinstein, Jiarul Midya, and Sanat K. Kumar\*

*ACS Polymers Au*, Articles ASAP (Article), Publication Date (Web): May 27, 2021

<https://doi.org/10.1021/acspolymersau.1c00006>

・記念すべき最初の論文、今後どのような専門分野のどのような話題の論文が採択されるのかに興味津々

#### **Pseudo-Polyrotaxane Stereocomplex with $\alpha$ -Cyclodextrin and Block Copolymers Using Poly(ethylene glycol) and Polylactide**

JaeYeong Choi, Toshikazu Takata, and Hiroharu Ajiro\*

*Macromolecules*, Articles ASAP (Article), Publication Date (Web): May 27, 2021

<https://doi.org/10.1021/acs.macromol.1c00220>

・CD-PEG ポリロタキサンと PLA ステレオコンプレックスをブロック共重合体の形で組み合わせた材料設計

### **Polymer Structure & Physics**

#### **Influence of Alkyl Chain Spacer Length on the Charge Carrier Mobility of Isotactic Poly(N-carbazolylalkyl acrylates)**

Sanket Samal and Barry C. Thompson\*

*ACS Macro Lett.* 2021, 10, 720-726, Articles ASAP (Letter), Publication Date (Web): May 24, 2021

<https://doi.org/10.1021/acsmacrolett.1c00249>

・ポリアクリル酸エステル側鎖のカルバゾール基間ホール移動に対するアルキルスペーサー長の効果を評価

#### **Generative Models for Extrapolation Prediction in Materials Informatics**

Kan Hatakeyama-Sato\* and Kenichi Oyaizu\*

ACS Omega, Articles ASAP (Article), Publication Date (Web): May 25, 2021

<https://doi.org/10.1021/acsomega.1c01716>

・モレキュラー・インフォマティクスのデータ不足の際の問題点を解消するための方法論を提案して検証

### Protein Dynamics Is Altered by a High Surface Density of Atomic Transfer Radical Polymerization Polymers

Ian J. Fucci, Kaustubh Sinha, and Gordon S. Rule\*

Langmuir, Articles ASAP (Article), Publication Date (Web): May 28, 2021

<https://doi.org/10.1021/acs.langmuir.1c00755>

・タンパク質(Rho130)/合成ポリマーコンジュゲートの構造とダイナミクス NMR と MD で解析して予測

### New Experimental Evidence for Thermodynamic Links to the Kinetic Fragility of Glass-Forming Polymers

Guozhang Wu,\* Yuanbiao Liu, and Gaopeng Shi

Macromolecules, Articles ASAP (Article), Publication Date (Web): May 28, 2021

<https://doi.org/10.1021/acs.macromol.1c00670>

・ガラスのフラジリティと  $\Delta H$  のヒステリシスをポリマー（ホモ/共重合体他）と低分子のデータで議論

### Adhesion & Surface Science

#### Superstrong Water-Based Supramolecular Adhesives Derived from Poly(vinyl alcohol)/Poly(acrylic acid) Complexes

Xiang Li, Zilin Wang, Wen Li, and Junqi Sun\*

ACS Materials Lett. 2021, 3, 875-882, Articles ASAP (Letter), Publication Date (Web): May 26, 2021

<https://doi.org/10.1021/acsmaterialslett.1c00167>

・PVA とポリアクリル酸を少量の水と混合してポリマー分子間や基材界面間の水素結合だけで高強度発現

#### Cyclization of PEG and Pluronic Surfactants and the Effects of the Topology on Their Interfacial Activity

Tomohisa Watanabe, Satoru Chimura, Yubo Wang, Tomoko Ono, Takuya Isono, Kenji Tajima, Toshifumi Satoh, Shin-ichiro Sato, Daichi Ida, and Takuya Yamamoto\*

Langmuir, Articles ASAP (Article), Publication Date (Web): May 28, 2021

<https://doi.org/10.1021/acs.langmuir.1c00513>

・PEG と PPG を ABA 型で分子内に組み込んで気液界面で 1 分子選択的に環状ポリマーを高効率で合成

#### Reversible pH Responsive Aggregation Behavior of Size-Controlled Calcium Carbonate Composite Nanoparticles by Phytic Acid in Aqueous Solution

Haekyung Lee, Shiho Nakamura, Hiroaki Imoto, and Kensuke Naka\*

Langmuir, Articles ASAP (Article), Publication Date (Web): May 23, 2021

<https://doi.org/10.1021/acs.langmuir.1c00744>

・フィチン酸(最近関連研究が急増)を用いた炭酸カルシウムナノ微粒子サイズ制御と pH 応答会合の解析

### Crystal Engineering & Liquid Crystals

#### Crystal Structures of $\beta$ -Methylchalcogenated Tetrathienoacenes: From One-Dimensional $\pi$ -Stacking to Sandwich Pitched $\pi$ -Stacking Structure

Kazuo Takimiya,\* Kiseki Kanazawa, and Kohsuke Kawabata

Crystal Growth & Design, Articles ASAP (Article), Publication Date (Web): May 25, 2021

<https://doi.org/10.1021/acs.cgd.1c00347>

・テトラチアノアセン系化合物の結晶の CH-pi 相互作用でヘリングボーン型の分子スタッキング形成

### General Chemistry & Others

#### Closed-loop recycling of polyethylene-like materials

Manuel Häußler, Marcel Eck, Dario Rothauer & Stefan Mecking

Nature, Vol 590, p. 423, published on 18 February 2021, <https://www.nature.com/articles/s41586-020-03149-9>

(News & Views) Closing the loop on recycling bioplastics, Charlotte K. Williams & Georgina L. Gregory, Nature, Vol 590,

p.38, published on 18 February 2021, [https://media.nature.com/original/magazine-assets/d41586-021-00349-9/d41586-](https://media.nature.com/original/magazine-assets/d41586-021-00349-9/d41586-021-00349-9.pdf)

[021-00349-9.pdf](https://media.nature.com/original/magazine-assets/d41586-021-00349-9/d41586-021-00349-9.pdf) (日本語解説) 完全なリサイクルを可能にするバイオマスプラスチック, Nature ダイジェスト

Vol. 18 No. 5, doi:10.1038/ndigest.2021.210546

#### Supramolecular cocrystals built through redox-triggered ion intercalation in $\pi$ -conjugated polymers

Yu Yamashita, Junto Tsurumi, Tadanori Kurosawa, Kan Ueji, Yukina Tsuneda, Shinya Kohno, Hideto Kempe, Shohei Kumagai, Toshihiro Okamoto, Jun Takeya & Shun Watanabe, Commun. Mater. 2, 45 (2021), Published on 21 April 2021.

<https://doi.org/10.1038/s43246-021-00148-9> (Peer Review File) [https://static-](https://static-content.springer.com/esm/art%3A10.1038%2Fs43246-021-00148-9/MediaObjects/43246_2021_148_MOESM2_ESM.pdf)

[content.springer.com/esm/art%3A10.1038%2Fs43246-021-00148-9/MediaObjects/43246\\_2021\\_148\\_MOESM2\\_ESM.pdf](https://static-content.springer.com/esm/art%3A10.1038%2Fs43246-021-00148-9/MediaObjects/43246_2021_148_MOESM2_ESM.pdf)