Polymer Hot Information on the Latest Week's Articles (October in 2020)

On October 5, 2020

Reviews

Discovery of the RAFT/MADIX Process: Mechanistic Insights and Polymer Chemistry Implications
Samir Z. Zard*****
Macromolecules, Articles ASAP (Perspective), Publication Date (Web): September 28, 2020
https://dx.doi.org/10.1021/acs.macromol.0c01441
・ザンテート系 RAFT 重合(MADIX)の反応性に焦点した総説、なぜ今ザンテート？の印象もなくはないが

Self-Assembled Bioinspired Nanocomposites
Francisco Lossada, Daniel Hoenders, Jiaqi Guo, Dejin Jiao, and Andreas Walther*****
Accounts of Chemical Research, Articles ASAP (Article), Publication Date (Web): September 29, 2020
https://dx.doi.org/10.1021/acs.accounts.0c00448
・自己集合型のナノコンポジットを様々な視点(次元/集積方法/素材/機能など)で整理，1D鎖集積も

Progress Toward Sustainable Reversible Deactivation Radical Polymerization
Philip B. V. Scholten, Dafni Moatsou, Christophe Detrembleur, and Michael A. R. Meier*
Macromol. Rapid Commun. 2020, *41*, 2000266
DOI: 10.1002/marc.202000266
・Green Chemistryの視点からRDRP(IUPACではLiving Radical Polymerizationに対してこの呼称を推奨)の概観

Controlled radical copolymerization of multivinyl crosslinkers: a robust route to functional branched macromolecules
Michael B Sims*
Polym Int 2020, First published: 10 July 2020
DOI 10.1002/pi.6084
・リビングラジカル重合も含まれるが、分岐/ネットワーク/星形/ミクロゲルの構造制御が中心

Construction methodologies and sequence-oriented properties of sequence-controlled oligomers/polymers generated via radical polymerization
Makoto Ouchi
Polym. J. Received: 2 July 2020, Revised: 27 July 2020, Accepted: 28 July 2020
https://doi.org/10.1038/s41428-020-00405-7
・シークエンス制御関連の研究を集約、著者自身のコンセプトと研究成果をわかりやすく解説

Modulation of Amyloid Protein Fibrillation by Synthetic Polymers: Recent Advances in the Context of Neurodegenerative Diseases
Pooja Ghosh and Priyadarsi De*
ACS Appl. Bio Mater., Publication Date: September 11, 2020
https://dx.doi.org/10.1021/acsabm.0c01021
・著者の守備範囲は合成からバイオまで広く、アミロイドのフィブリル化にポリマーを絡めた話題

Polymer-Ligated Nanocrystals Enabled by Nonlinear Block Copolymer Nanoreactors: Synthesis, Properties, and Applications
Yijiang Liu,* Jialin Wang, Mingyue Zhang, Huaming Li, and Zhiqun Lin*
ACS Nano, Publication Date: September 25, 2020
https://dx.doi.org/10.1021/acsnano.0c06936

Polydopamine free radical scavengers
Junfei Hu, Lei Yang, Peng Yang, Shaohua Jiang, Xianhu Liu and Yiwen Li *
Biomater. Sci., 2020, 8, 4940
DOI: 10.1039/d0bm01070g
・カテコール、ドーパミンに関連するポリマーの総説、ラジカルスカベンジャーとしての生体応用

Polymer Synthesis

A Mechanochemical Reaction Cascade for Controlling Load-Strengthening of a Mechanochromic Polymer
Yifei Pan+, Huan Zhang+, Piaoxue Xu, Yancong Tian, Chenxu Wang, Shishuai Xiang,

Roman Boulatov,* and Wengui Weng*
Angew. Chem. Int. Ed., First published: 22 August 2020
https://doi.org/10.1002/anie.202010043
・スピロピランのメカノクロミズムとマレイミド/アントラセン DA 反応を組合せて分岐ポリマー機能化

Cross-Linking Agents for Enhanced Performance of Thermosets Prepared via Frontal Ring-Opening Metathesis Polymerization
Douglas G. Ivanoff, Jaeuk Sung, Sydney M. Butikofer, Jeffrey S. Moore, and Nancy R. Sottos*
Macromolecules, Articles ASAP (Article), Publication Date (Web): September 30, 2020
https://dx.doi.org/10.1021/acs.macromol.0c01530
・ジシクロペンタジエンの開環メタセシスフロンタル重合(多官能性モノマー使用)で高強度材料作製

Revival of Cyclopolymerizable Monomers as Low-Shrinkage Cross-Linkers
Gernot Peer, Markus Kury, Christian Gorsche, Yohann Catel, Philipp Frühwirt, Georg Gescheidt, Norbert Moszner, and Robert Liska*
Macromolecules, Articles ASAP (Article), Publication Date (Web): September 30, 2020
https://dx.doi.org/10.1021/acs.macromol.0c01551
・環化重合を組み込むと低収縮性の架橋剤が設計できる？低収縮性には分子内成長利用の必要があり？

N-Activated 1,3-Benzoxazine Monomer as a Key Agent in Polybenzoxazine Synthesis
Danuta Trybuła, Aleksandra Marszałek-Harych, Małgorzata Gazińska, Sławomir Berski, Dawid Jędrzkiewicz, and Jolanta Ejfler*
Macromolecules, Articles ASAP (Article), Publication Date (Web): September 27, 2020
・ポリベンズオキサジン用のモノマー設計、計算化学と有機合成化学を駆使、実際にポリマー合成も

Controlled polymerization of styrene in the presence of Blatter´s radicals
Yu. L. Kuznetsova,a A. S. Vavilova,a Yu. B. Malysheva,a M. A. Lopatin,b I. D. Grishin,a T. O. Burdyukova,a E. A. Zaburdaeva,a E. Yu. Polozov,a A. Yu. Fedorova
Russian Chemical Bulletin, International Edition, Vol. 69, No. 8, pp. 1470—1477, August, 2020
・普段は目にしない雑誌(Springer)、窒素中心安定ラジカルを利用した LRP、verdazyl と似た構造

Polymer Materials

Tough and Three-Dimensional-Printable Poly(2-methoxyethyl acrylate)–Silica Composite Elastomer with Antiplatelet Adhesion Property
Fumio Asai*, Takahiro Seki, Ayae Sugawara-Narutaki, Kazuhide Sato, Jérémy Odent, Olivier Coulembier, Jean-Marie Raquez, and Yukikazu Takeoka*
ACS Applied Materials & Interfaces, Articles ASAP, Publication Date (Web): September 17, 2020
https://dx.doi.org/10.1021/acsami.0c11416
・生体適合性PMEAを用いてシリカナノコンポジット化して3Dプリンター使用できる材料強度を達成

Electron and X-ray Focused Beam-Induced Cross-Linking in Liquids: Toward Rapid Continuous 3D Nanoprinting and Interfacing using Soft Materials
Tanya Gupta, Evgheni Strelcov, Glenn Holland, Joshua Schumacher, Yang Yang, Mandy B. Esch, Vladimir Aksyuk, Patrick Zeller, Matteo Amati, Luca Gregoratti, and Andrei Kolmakov*
ACS Nano, Publication Date: September 16, 2020
https://dx.doi.org/10.1021/acsnano.0c04266
・電子線、X 線を用いて 3D リソグラフィー、PEGDA ゲルを利用、図が派手すぎ？

Dimensionally Stable and Mechanically Adaptive Polyelectrolyte Hydrogel
Chen Qian, Taka-Aki Asoh,* and Hiroshi Uyama*
Macromol. Rapid Commun. 2020, 2000406
DOI: 10.1002/marc.202000406
・PNaSS とアルギン酸を使用、可逆的架橋

Adhesion & Interface

Open-to-Air RAFT Polymerization on a Surface under Ambient Conditions
Chung Soo Kim, Soojeong Cho, Ji Hoon Lee, Woo Kyung Cho,* and Kyung-sun Son*
Langmuir 2020, Publication Date: September 13, 2020

https://dx.doi.org/10.1021/acs.langmuir.0c01947
・酸素存在下での表面開始 RAFT 重合制御、シリコン基板上にブロックポリマーブラシをグラフト

Influences of Phosphates on the Adhesion of a Catechol-Containing Polymer
Taylor A. Jones and Jonathan J. Wilker*
ACS Applied Polymer Materials, Articles ASAP (Article), Publication Date (Web): September 15, 2020
https://dx.doi.org/10.1021/acsapm.0c00699
・含カテコール/フォスフェートポリマーの接着特性評価、生体系の接着機構を説明したい？

Crystal Engineering & Liquid Crystal
Distance-Selected Topochemical Dehydro-Diels–Alder Reaction of 1,4-Diphenylbutadiyne toward Crystalline Graphitic Nanoribbons
Peijie Zhangら（著者多数）
J. Am. Chem. Soc., Publication Date: September 8, 2020
https://dx.doi.org/10.1021/jacs.0c08274
・重合不活性なジフェニルジアセチレンを重合以外の固相反応(脱水素 DA)でグラファイトナノリボンに

On October 12, 2020
Reviews
Interfacial Assembly Directed Unique Mesoporous Architectures: From Symmetric to Asymmetric
Tiancong Zhao, Liang Chen, Runfeng Lin, Pengfei Zhang, Kun Lan, Wei Zhang, Xiaomin Li*, and Dongyuan Zhao*
Accounts of Materials Research, Articles ASAP (Article), Publication Date (Web): October 7, 2020
https://dx.doi.org/10.1021/accountsmr.0c00028
・ACS の新刊総説誌(アカウント)、タイトルに Materials を含むが主に先進機能/応用が中心か？要注目

Functional Ionic Liquid Crystals
Krishnachary Salikolimi, Achalkumar Ammathnadu Sudhakar*, and Yasuhiro Ishida*
Langmuir, Articles ASAP (Invited Feature Article), Publication Date (Web): September 14, 2020
https://dx.doi.org/10.1021/acs.langmuir.0c01935
・イオン液体と液晶の話題を合体した総説、以前の液晶系・集合系の重合の話題も一部含む

Bioinspired structural color nanocomposites with healable capability
Lianbin Zhang, Miaomiao Li, Quanqian Lyu and Jintao Zhu*
Polym. Chem., 2020, Advance Article, The article was first published on 25 Sep 2020
https://doi.org/10.1039/D0PY01096K
・生体模倣の構造色発現可能で自己修復性のナノ複合材料、流行りのキーワード満載の材料設計

Inherently degradable cross-linked polyesters and polycarbonates: resins to be cheerful
Theona Şucu and Michael P. Shaver*
Polym. Chem., 2020, Advance Article, The article was first published on 01 Oct 2020
https://doi.org/10.1039/D0PY01226B
・イタコン酸やイソソルビド原料の分解性架橋点を含むポリエステルとポリカーボネート材料設計

Photoinduced healing of mechanically robust polymers
Shuxiu Li, Zehong Wu, Minghao Wang, and Si Wu*
Chemistry Letters, Highlight Review, Advance Publication on the web September 11, 2020
https://doi.org/10.1246/cl.200548
・光照射によって自己修復可能な高強度ポリマー材料に関するコンパクトな総説

Polymer Synthesis
A Comprehensive Platform for the Design and Synthesis of Polymer Molecular Weight Distributions
Ke Liu, Nathaniel Corrigan*, Almar Postma, Graeme Moad, and Cyrille Boyer*
Macromolecules, Articles ASAP (Article), Publication Date (Web): October 8, 2020
https://dx.doi.org/10.1021/acs.macromol.0c01954
・机上の話ではなく、実際のポリマー分子量分布をシステム的に制御、普遍化はどこまで可能か？

Chemically Recycling Poly(thiourethane) Thermosets Enabled by Dynamic Thiourethane Bonds

Sijia Huang, Maciej Podgórski, Xun Han and Christopher N Bowman
Polym. Chem., **2**020, Advance Article
DOI: 10.1039/D0PY01050B
・動的チオウレタン結合を含むポリチオ尿素熱硬化物の化学リサイクル

Anionic Polymerization of Methacrylate-Functionalized Ionic Monomers in Ionic Liquid
Nobuyuki Otozawa, Masataka Yoshioka, Daiki Ihara, Rio Hamajima, Raito Kato, Toshiki Terao, Hiroto Fukuma, Satoshi Kuretani, Tamio Seko, Syuji Fujii, Yoshinobu Nakamura, Motoyasu Kobayashi, Atsushi Takahara, and Tomoyasu Hirai
Chemistry Letters, Advance Publication on the web September 12, 2020
https://doi.org/10.1246/cl.200546
・カチオン性モノマーと双性イオンモノマーのイオン液体中でのアニオン重合

Polymer Materials

Flexible and Strong Robust Superhydrophobic Monoliths with Antibacterial Property
Huanhuan Wang, Keli Wang, Haitao Lu, Ivan P. Parkin, and Xia Zhang*
ACS Applied Polymer Materials, Articles ASAP (Article), Publication Date (Web): September 28, 2020
https://dx.doi.org/10.1021/acsapm.0c00792
・超撥水モノリス材料、材料は金属 or 金属酸化物/PDMS ゴム複合系、用途は細胞接着抑制に特化

Manipulation of Fracture Behavior of Poly(methyl methacrylate) Nanocomposites by Interfacial Design of a Metal–Organic-Framework Nanoparticle Toughener
Cong Liu, Sinan Feng, Zewen Zhu, Qihui Chen, Kwanghae Noh, Masaya Kotaki, and Hung-Jue Sue*
Langmuir, Articles ASAP (Article), Publication Date (Web): September 17, 2020
https://dx.doi.org/10.1021/acs.langmuir.0c02029
・PMMA に微粒子分散、強靭化、80 年代 Yee/Pearson のエラストマー分散破壊機構と基本変わらないか

Amphoteric Statistical Copolymers with Well-controlled Structure and Upper Critical Solution Temperature in Aqueous Solutions
Komol Kanta Sharker, Shigeta Yusuke, Shinji Ozoe, and Shin-ichi Yusa
Chemistry Letters, Advance Publication on the web October 1, 2020
https://doi.org/10.1246/cl.200561
・NaSS とカチオン性モノマーのランダム共重合体 UCST 挙動

Ordered Bicontinuous Mesoporous Polymeric Semiconductor Photocatalyst
Qian Li, Chuanshuang Chen, Chen Li, Ruiyi Liu, Shuai Bi, Pengfei Zhang, Yongfeng Zhou, and Yiyong Mai*
ACS Nano, Articles ASAP (Article), Publication Date (Web): October 9, 2020
https://dx.doi.org/10.1021/acsnano.0c05797
・PS-*block*-PEO をテンプレートにしてシリカの二重ダイヤモンド構造を形成、多孔質材料光触媒

Polymer Physics & Structure

The role of temperature in the rigidity-controlled fracture of elastic networks
Justin Tauber, Aimee R. Kok, Jasper van der Gucht,∗ and Simone Dussi
Soft Matter (2020), Ahead of Print.
DOI: 10.1039/D0SM01063D
・破壊機構解析、内容はかなり難しい？

Adhesion & Surface Science

Using *in situ* polymerisation to enhance adhesion of dissimilar materials
Filip Stojcevski, Owais Siddique, Gaspard Meric, James D. Randall, Nicholas S. Emonson, Luke C. Henderson
International Journal of Adhesion and Adhesives, Volume 104, January 2021, 102740
https://doi.org/10.1016/j.ijadhadh.2020.102740
・接着層に重合を利用した異種材料接合、ポリマーを表面グラフトした金属と樹脂の接合

Interface investigation between dissimilar materials by ultrasonic thermal welding by the third phase
Guohong Zhang, Jianhui Qiu*, Eiichi Sakai, Zuowan Zhou
International Journal of Adhesion and Adhesives, Volume 104, January 2021, 102722
https://doi.org/10.1016/j.ijadhadh.2020.102722

・異種材料接合への機械系分野でのアプローチ例、超音波接合？

Crystal Engineering & Liquid Crystals

Fjord-Edge Graphene Nanoribbons with Site-Specific Nitrogen Substitution
Yolanda L. Li, Chih-Te Zee, Janice B. Lin, Victoria M. Basile, Mit Muni, Maria D. Flores, Julen Munárriz, Richard B. Kaner, Anastassia N. Alexandrova, K. N. Houk, Sarah H. Tolbert, and Yves Rubin*
Journal of the American Chemical Society, Articles ASAP (Article), Publication Date (Web): September 7, 2020
https://dx.doi.org/10.1021/jacs.0c07657
・3-ピリジンブタジインンの固相重合で作製した PDA を用いて固相反応でグラフェンナノリボンを合成

Excitons and Polarons in Organic Materials
Raja Ghosh and Frank C. Spano*
Accounts of Chemical Research, Articles ASAP (Article), Publication Date (Web): October 9, 2020
https://dx.doi.org/10.1021/acs.accounts.0c00349
・導電性共役ポリマーのポーラロンとエキシトンの生成とポリチオフェンの導電機構、PDA も同様？

Quasi-liquid Layers in Grooves of Grain Boundaries and on Grain Surfaces of Polycrystalline Ice Thin Films
Jialu Chen, Takao Maki, Ken Nagashima, Ken-ichiro Murata, and Gen Sazaki*
Crystal Growth & Design, Articles ASAP (Article), Publication Date (Web): September 16, 2020
https://dx.doi.org/10.1021/acs.cgd.0c00799
・北大低温研の著者らは数年前から表層の氷の結晶化をターゲット、以前はタンパク結晶化の化学工学

Clarifying the Correlation of Ice Adhesion Strength with Water Wettability and Surface Characteristics
Xinghua Wu, Yizhou Shen, Shunli Zheng, Zhong-Ting Hu,* and Zhong Chen*
Langmuir, Articles ASAP (Article), Publication Date (Web): September 28, 2020
https://dx.doi.org/10.1021/acs.langmuir.0c01801
・撥水性と撥氷性(氷と基材表面間の作用)の違い(これまで論争があり未解決)について新しい提案

Bio-related Polymers

Development of barium-based low viscosity contrast agents for micro CT vascular casting: Application to 3D visualization of the adult mouse cerebrovasculature
Hong, Sung-Ha; Herman, Alexander M.; Stephenson, Jessica M.; Wu, Ting; Bahadur, Ali N.; Burns, Alan R.; Marrelli, Sean P.; Wythe, Joshua D.
Journal of Neuroscience Research (2020), 98(2), 312-324.

On October 19, 2020

Reviews

100th Anniversary of Macromolecular Science Viewpoint: Toward Catalytic Chemical Recycling of Waste (and Future) Plastics
Joshua C. Worch and Andrew P. Dove
ACS Macro Letters, Articles ASAP (Viewpoint), Publication Date (Web): October 12, 2020
https://dx.doi.org/10.1021/acsmacrolett.0c00582
・汎用プラスチックのリサイクルからモノマー(ポリマー)デザインまで、生物由来原料以外の切り口

Nanoassembled Interface for Dynamics Tailoring
Chuanhui Huang, Xiangyu Chen, Zhenjie Xue, and Tie Wang*
Accounts of Chemical Research, Articles ASAP (Article), Publication Date (Web): October 12, 2020
https://dx.doi.org/10.1021/acs.accounts.0c00476
・多様な要素と基礎科学を駆使したナノレベルでの機能設計/材料設計の姿、実験はかなり大変そう

Thermosetting polymers from renewable sources
Rafael L Quirino,* Khristal Monroe, Carl H Fleischer III, Eletria Biswas and Michael R Kessler*
Polymer International, Version of Record online: 10 October 2020
https://doi.org/10.1002/pi.6132
・天然由来原料を利用し多官能化合物/架橋系の合成設計、グリセリン/フェノール/カテコールなど

A mechanistic perspective on atom transfer radical polymerization

Alfred KK Fung, Michelle L Coote
Polymer International, Version of Record online: 09 October 2020
https://doi.org/10.1002/pi.6130
・著者の最近 1-2 年の ATRP の理論計算の結果を再度まとめ直したもの、特に新しい展開・展望はなし

Design and Synthesis of Polyimide Covalent Organic Frameworks
Ya Zhang, Zhe Huang, Bo Ruan, Xinke Zhang, Tao Jiang, Ning Ma,* and Fang-Chang Tsai*
Macromol. Rapid Commun. 2020, 2000402, Version of Record online: 14 October 2020
https://doi.org/10.1002/marc.202000402
・ポリイミド系 COF 総説、分子レベルの多孔構造精密制御と特徴ある機能・物性を引き出せるか鍵

Hydrogen-Bonded Organic Frameworks: A Rising Class of Porous Molecular Materials
Penghao Li, Matthew R. Ryder, and J. Fraser Stoddart
Accounts of Materials Research, Articles ASAP (Article), Publication Date (Web): October 13, 2020
・Stoddart 最新総説、ひと昔前のクリスタルエンジニアリングと何が違うのか？似ているようで違う？

Nanosilica-Toughened Epoxy Resins
Stephan Sprenger
Polymers **2020**, 12, 1777
doi:10.3390/polym12081777
・シリカナノ微粒子/エポキシ樹脂系の高強度化、網羅する総説ではなく、一部のデータに特化して解説

Toughening of Epoxy Systems with Interpenetrating Polymer Network (IPN): A Review
Ujala Farooq *, Julie Teuwen and Clemens Dransfeld
Polymers **2020**, 12, 1908
doi:10.3390/polym12091908
・IPN 構造のエポキシ樹脂の強靭化に関する総説、合成法、ネットワーク構造、機械物性について解説

Polymer Synthesis

Multifactor Control of Vinyl Monomer Sequence, Molecular Weight, and Tacticity via Iterative Radical Additions and Olefin Metathesis Reactions
Masato Miyajima, Kotaro Satoh, Takahiro Horibe, Kazuaki Ishihara, and Masami Kamigaito*****
Journal of the American Chemical Society, Articles ASAP (Article), Publication Date (Web): October 15, 2020
https://doi.org/10.1021/jacs.0c09289
・逐次反応(ラジカル付加＋アリル化＋閉環メタセシス＋水素添加)でシークエンス制御ポリマー合成

Comprehensive Picture of Functionalized Vinyl Monomers in Chain-Walking Polymerization
Yuxing Zhang and Zhongbao Jian*****
Macromolecules, Articles ASAP (Article), Publication Date (Web): October 15, 2020
・Pd や Ni 触媒に特有、触媒が動いて成長反応が進行、連鎖的縮合反応(Ni 系)も同様の機構で進行？

Bio-based and Degradable Block Polyester Pressure-Sensitive Adhesives
Thomas T. D. Chen, Leticia PeÇa Carrodeguas, Gregory S. Sulley, Georgina L. Gregory, and Charlotte K. Williams*
Angew. Chem. Int. Ed. 2020, First published: 04 September 2020
https://doi.org/10.1002/anie.202006807
・モノマー(ポリマー)の構造設計は従来のアイデアの組み合わせを利用、触媒とプロセスに新しい工夫

Reversible Soft Mechanochemical Control of Biaryl Conformations through Crosslinking in a 3D Macromolecular Network
Julien B. Kelber+, Amina Bensalah-Ledoux, Sarah Zahouani, Bruno Baguenard, Pierre Schaaf, Alain Chaumont, Stephan Guy,* and Loc Jierry*
Angew. Chem. Int. Ed. 2020, First published: 28 August 2020
https://doi.org/10.1002/anie.202010604
・ビナフチル系架橋剤(ジビニルモノマー)使用のポリマーネットワーク構造制御、最終目的は遠い？

Temperature Variation Enables the Design of Biobased Block Copolymers via One-Step Anionic Copolymerization
Jennifer Bareuther, Martina Plank, Björn Kuttich, Tobias Kraus, Holger Frey, and Markus Gallei*

Macromol. Rapid Commun. 2020, 2000513, Version of Record online: 12 October 2020
https://doi.org/10.1002/marc.202000513
・ミルセンも注目すべきモノマー、アニオン重合の反応条件操作でワンポットブロックポリマー合成

Visual Ozone Sensor: Structural Color Change of Pendant Selenium-Containing Maleimide Polymers via Oxidation
Qilong Li, Shaoxiang Liu, Jiajia Li, Xiangqiang Pan,* Jian Zhu,* and Xiulin Zhu
Macromol. Rapid Commun. 2020, 2000517, Version of Record online: 12 October 2020
https://doi.org/10.1002/marc.202000517
・著者は以前からα置換マレイミド/St 共重合系で機能性ポリマーを開発、脱 RSeH で主鎖に不飽和導入

Synthesis and properties of thermoplastic and dissolvable polysiloxanes containing polyhedral oligomeric silsesquioxane
Ruilu Guo, Yuemin Liu, Lixia Zhou, Guangxin Chen, Zheng Zhou, Qifang Li
J. Polym. Sci. 2020, Version of Record online: 17 October 2020
https://doi.org/10.1002/pol.20199265
・かご形 SQ(POSS)を側鎖に含む熱可塑性(可溶性)ポリマーの合成例のひとつ、注目すべき成果はなし

An Experimental and Computational Approach on Controlled Radical Photopolymerization of Limonene
Ramon Victor de Castro Alvarelli da Silva and Roniérik Pioli Vieira*
Macromol. Chem. Phys. 2020, 2000199, First published: 13 October 2020
https://doi.org/10.1002/macp.202000199
・リモネンは注目のモノマー原料であるが、本論文の机上の計算(シミュレーション)は実際には？

Polymer Materials
Cyclic Water Storage Behavior of Doubly Thermoresponsive Poly(sulfobetaine)-Based Diblock Copolymer Thin Films
Thin Films Lucas P. Kreuzer, Tobias Widmann, Nawarah Aldosari, Lorenz Bießmann, Gaetano Mangiapia, Viet Hildebrand, AndréLaschewsky, Christine M. Papadakis, and Peter Müller-Buschbaum*
Macromolecules, Articles ASAP (Article), Publication Date (Web): October 13, 2020
https://dx.doi.org/10.1021/acs.macromol.0c01335
・双性イオンポリマー(スルホベタインポリマー)の温度応答性と水和挙動、PNIPMAMとのブロック

Influence of the Growing Flexible Shell on the Molecular Behavior of Hybrid Dendrimers
Dendrimers Sergey A. Milenin,* Georgy V. Cherkaev, Nina V. Demchenko, Elena S. Serkova, Irina Yu. Krasnova, Elizaveta V. Selezneva, Mikhail I. Buzin, Artem V. Bakirov, Viktor G. Vasil'ev, Zinaida B. Shifrina, Sergey N. Chvalun, and Aziz M. Muzafarov
Macromolecules, Articles ASAP (Article), Publication Date (Web): October 13, 2020
https://dx.doi.org/10.1021/acs.macromol.0c01453
・剛直な芳香族コアと柔軟なカルボシランデンドロンを組みあわせたデンドリマー、カラムナー相形成

Reinforcing effects of aminosilane-functionalized h-BN on the physicochemical and mechanical behaviors of epoxy nanocomposites
A. S. Mostovoy*, M. A. Vikulova & M. I. Lopukhova
Sci Rep **10,** 10676 (2020), Published on 30 June 2020
https://doi.org/10.1038/s41598-020-67759-z
・エポキシ系ナノコンポジット、アミノ含有シランカップリング剤で窒化ホウ素表面処理

Polymer Structure & Physics
Strain Rate and Thickness Dependences of Elastic Modulus of Free Standing Polymer Nanometer Films Pak Man
Yiu, Hailin Yuan, Qiao Gu, Ping Gao, and Ophelia K. C. Tsui*
ACS Macro Lett. 2020, 9, 1521−1526
https://dx.doi.org/10.1021/acsmacrolett.0c00471
・PS フィルムと PDMS 上の PS 薄膜(8-130 nm)の機械物性評価、鎖の絡み合いとの関連を数値化

Effects of Ring Size on the Dynamics of Polyrotaxane Glass
Kazuaki Kato*, Akihiro Ohara, Koji Michishio, and Kohzo Ito
Macromolecules, Articles ASAP (Article), Publication Date (Web): October 14, 2020

https://dx.doi.org/10.1021/acs.macromol.0c02009
・ポリロタキサンゲルのガラス転移とシクロデキストリン(CD)のサイズ(動的架橋点の運動性)との関係

***In Situ* Synchrotron Radiation X-ray Scattering Investigation of a Microphase-Separated Structure of Thermoplastic Elastomers under Uniaxial and Equi-Biaxial Deformation Modes**
Nattanee Dechnarong, Kazutaka Kamitani, Chao-Hung Cheng, Shiori Masuda, Shuhei Nozaki, Chigusa Nagano, Yoshifumi Amamoto, Ken Kojio,* and Atsushi Takahara*
Macromolecules, Articles ASAP (Article), Publication Date (Web): October 12, 2020
https://dx.doi.org/10.1021/acs.macromol.0c00962
・熱可塑性エラストマー(ブロックコポリマー)の 1 軸および 2 軸変形挙動を放射光 X 線散乱実験で解析

Effect of a heterogeneous network on glass transition dynamics and solvent crack behavior of epoxy resins
Mika Aoki, Atsuomi Shundo, Satoru Yamamoto and Keiji Tanaka
Soft Matter, 2020, **16**, 7470-7478, The article was first published on 21 Jul 2020
https://doi.org/10.1039/D0SM00625D
・エポキシ樹脂硬化過程、ネットワーク構造、Tg、溶媒亀裂発生＆進展など関連付け

Adhesion & Interfaces
Monodispersity of Poly(ethylene glycol) Matters for Low-Fouling Coatings
Peiyu Zhang, Zhonghe Zhang, Donglei Wang, Jingcheng Hao, and Jiwei Cui*****
ACS Macro Letters, Articles ASAP (Letter), Publication Date (Web): October 9, 2020
https://doi.org/10.1021/acsmacrolett.0c00557
・材料表面の PEG 鎖の分子量&分子量分布が細胞接着に与える影響を議論、単分散性がどこまで重要か

Crystal Engineering & Liquid Crystal
New Mechanistic Insights into the Formation of Imine-Linked Two-Dimensional Covalent Organic Frameworks
Cameron Feriante, Austin M. Evans, Samik Jhulki, Ioannina Castano, Michael J. Strauss, Stephen Barlow, William R. Dichtel,* and Seth R. Marder*
Journal of the American Chemical Society, Articles ASAP (Article), Publication Date (Web): October 15, 2020
https://dx.doi.org/10.1021/jacs.0c08390
・2D ポリマー積層体の新規合成ルート、2D-COF の機能(構造の重要性)はまだわかっていない？

General Chemistry & Others
Cleavable comonomers enable degradable, recyclable thermoset plastics
Peyton Shieh, Wenxu Zhang, Keith E. L. Husted, Samantha L. Kristufek, Boya Xiong, David J. Lundberg, Jet Lem, David Veysset, Yuchen Sun, Keith A. Nelson, Desiree L. Plata & Jeremiah A. Johnson
Nature, **583**(7817), 542-547 (2020). Published online: 22 July 2020
https://doi.org/10.1038/s41586-020-2495-2

Self-limiting directional nanoparticle bonding governed by reaction stoichiometry
Chenglin Yi, Hong Liu, Shaoyi Zhang, Yiqun Yang, Yan Zhang, Zhongyuan Lu, Eugenia Kumacheva, Zhihong Nie
Science, **369**(6509), 1369–1374 (2020)
DOI: 10.1126/science.aba8653
Reactive polymers guide nanoparticle clustering（上記論文の解説記事）Gang, Oleg, *Science*, **369**(6509), 1305-1306 (2020).

Cartilage-inspired, lipid-based boundary-lubricated hydrogels
Weifeng Lin, Monika Kluzek, Noa Iuster, Eyal Shimoni, Nir Kampf, Ronit Goldberg, Jacob Klein*
Science 16 Oct 2020: Vol. 370, Issue 6514, pp. 335-338
DOI: 10.1126/science.aay8276
Lubricating lipids in hydrogels: A self-renewing lipid layer substantially reduces friction and wear of a hydrogel surface（上記論文の解説記事）Tannin A. Schmidt**,** *Science*, **583**(7817), 16 OCTOBER 2020, VOL 370, ISSUE 6514
DOI: 10.1126/science.abd3831

On October 26, 2020
Reviews
Neutral Nickel(II) Catalysts: From Hyperbranched Oligomers to Nanocrystal-Based Materials

Stefan Mecking* and Manuel Schnitte
Accounts of Chemical Research, Articles ASAP (Article), Publication Date (Web): October 23, 2020
https://dx.doi.org/10.1021/acs.accounts.0c00540
・エチレン重合触媒設計、トリフルオロメチル置換で触媒特性がらりと変化、Brookhart 触媒に匹敵？

Nano-Immune-Engineering Approaches to Advance Cancer Immunotherapy: Lessons from Ultra-pH-Sensitive Nanoparticles (Published as part of the Accounts of Chemical Research special issue “Chemistry in Cancer Immunotheranostics”)
Suxin Li, Zachary T. Bennett, Baran D. Sumer, and Jinming Gao*
Accounts of Chemical Research, Articles ASAP (Article), Publication Date (Web): October 16, 2020
https://dx.doi.org/10.1021/acs.accounts.0c00475
・pH 応答性(LCST)ポリメタクリレートナノ微粒子を DLS(リンパ)に応用、ポリマー構造活性の相関が明快

Enhancements in the Mechanical Stretchability and Thermoelectric Properties of PEDOT: PSS for Flexible Electronics Applications
Hao He and Jianyong Ouyang*
Accounts of Materials Research, Articles ASAP (Article), Publication Date (Web): October 16, 2020
https://dx.doi.org/10.1021/accountsmr.0c00021
・PEDOT/PSS 関連で材料、解析、展開手法は平凡だが材料関連分野では高評価？雑誌方向性を模索中？

100th Anniversary of Macromolecular Science Viewpoint: Block Copolymers with Tethered Acid Groups: Challenges and Opportunities
Sejong Kang and Moon Jeong Park*
ACS Macro Letters, 2020, 9, 1527−1541, Articles ASAP (Viewpoint), Publication Date (Web): October 16, 2020
・ブロックポリマーの相分離構造の特定の位置にポリマー側鎖の酸を配列して固体電解質を材料設計

Performance-Enhancing Approaches for PEDOT:PSSSi Hybrid Solar Cells
Zhe Sun, Ya He, Banglun Xiong, Shanshan Chen,* Meng Li, Yongli Zhou, Yujie Zheng, Kuan Sun,* and Changduk Yang*
Angew. Chem. Int. Ed., Version of Record online:23 October 2020
doi.org/10.1002/anie.201910629
・ここにも PEDOT/PSS 関連総説、Si 太陽電池がらみ

Transparent Soft Actuators/Sensors and Camouflage Skins for Imperceptible Soft Robotics
Phillip Won, Kyun Kyu Kim, Hyeonseok Kim, Jung Jae Park, Inho Ha, Jaeho Shin, Jinwook Jung, Hyunmin Cho, Jinhyeong Kwon, Habeom Lee, and Seung Hwan Ko*
Adv. Mater. 2020, 2002397, Version of Record online:21 October 2020
https://doi.org/10.1002/adma.202002397
・ソフトロボティクス材料への性能要求はレベルが高く、複合的な取り組みでないと太刀打ちできない

Polymer Synthesis

Photoexcitation of Grubbs’ Second-Generation Catalyst Initiates Frontal Ring-Opening Metathesis Polymerization
Katherine J. Stawiasz, Justine E. Paul, Kevin J. Schwarz, Nancy R. Sottos, and Jeffrey S. Moore*
ACS Macro Letters, 2020, 9, 1563−1568, Articles ASAP (Letter), Publication Date (Web): October 20, 2020
・開環メタセシスでフロンタル重合、FP の第２次ブーム到来の可能性大いにあり

Polymerization-induced self-assembly *via* RAFT in emulsion: effect of Z-group on the nucleation step
Thiago R. Guimarães, Y. Loong Bong, Steven W. Thompson, Graeme Moad, Sébastien Perrier and Per B. Zetterlund
Polym. Chem., 2020, Advance Article, The article was first published on 16 Oct 2020
https://doi.org/10.1039/D0PY01311K
・3 研究グループの共同研究、乳化重合の初期過程に及ぼす Z 置換基(RAFT 剤の溶解分散性)の影響

Polymer Materials

Skin-Inspired Hydrogel-Elastomer Hybrid Forms a Seamless Interface by Autonomous Hetero-Self-Healing
Sung-Ho Shin, Seon-Mi Kim, Hyeonyeol Jeon, Sung Yeon Hwang,* Dongyeop X. Oh,* and Jeyoung Park*
ACS Applied Polymer Materials, Articles ASAP (Letter), Publication Date (Web): October 19, 2020
https://dx.doi.org/10.1021/acsapm.0c00925

・エラストマーとヒドロゲルを２層で複合化してエレクトロデバイス用の自己修復型人工皮膚を設計

Stress Relaxation and Underlying Structure Evolution in Tough and Self-Healing Hydrogels
Kunpeng Cui, Ya Nan Ye, Chengtao Yu, Xueyu Li, Takayuki Kurokawa, and Jian Ping Gong*
ACS Macro Letters, 2020, 9, 1582−1589 Articles ASAP (Letter) Publication Date (Web): October 22, 2020
・アニオン性ポリマー(NaSS)とカチオン性ポリマー系自己修復型高強度 DN ゲル、応力緩和メカニズム

Reversibly Softening and Stiffening Organogels Using a Wavelength-Controlled Disulfide-Diselenide Exchange
M. Mario Perera, Prathyusha Chimala, Abdul Elhusain-Elnegres, Paul Heaton, and Neil Ayres*
ACS Macro Letters, 2020, 9, 1552−1557, Articles ASAP (Letter), Publication Date (Web): October 20, 2020
・チオール/ジスルフィド材料設計に Se 系をプラス、ジセレニドとの間で交換反応、機械物性可逆変換

Diselenide-Linked Polymers under Sonication
Qin Wu, Yuan Yuan, Feiyi Chen, Chenxing Sun, Huaping Xu,* and Yulan Chen*
ACS Macro Letters, 2020, 9, 1547−1551, Articles ASAP (Letter), Publication Date (Web): October 19, 2020
・これもジセレニド系、ATRP ポリマー末端を Na_2Se_2 でカップリング、末端 Se ラジカル Se-Se 交換反応

Pyranine Based Ion-Paired Complex as a Mechanophore in Polyurethanes
Annelore Aerts, Sean J. D. Lugger, Johan P. A. Heuts, and Rint P. Sijbesma*
Macromol. Rapid Commun. Version of Record online:14 October 2020
https://doi.org/10.1002/marc.202000476
・ポリウレタン分子中にピレニル基を導入、応力負荷で分子延伸し、ピレニル２分子が配向して発光

Christiansen Effect-Based Physical Coloration of a Cellulosic Monolith Conveniently Fabricated Using Thermally Induced Phase Separation
Yasushi Takeuchi, Yuki Hayashi, and Hiroshi Uyama*
Macromol. Chem. Phys. Version of Record online:19 October 2020
https://doi.org/10.1002/macp.202000272
・セルロースアセテートモノリス(熱誘起)、溶媒/非溶媒・温度制御で屈折率・色調制御

Polymer Structure & Physics
Local Orientation of Polystyrene at the Interface with Poly(methyl methacrylate) in Block Copolymer
Kiminori Uchida,* Kazuki Mita, Satoru Yamamoto,* and Keiji Tanaka*
ACS Macro Letters, 2020, 9, 1576−1581, Articles ASAP (Letter), Publication Date (Web): October 20, 2020
・PS-block-PMMA の相界面の分子構造を表面ではなく界面に対して SFG で直接解析

A Polymer with Mechanochemically Active Hidden Length
Yancong Tian, Xiaodong Cao, Xun Li, Huan Zhang, Cai-Li Sun, Yuanze Xu, Wengui Weng,* Wenke Zhang,* and Roman Boulatov*
Journal of the American Chemical Society, Articles ASAP (Article), Publication Date (Web): October 16, 2020
https://dx.doi.org/10.1021/jacs.0c09220
・応力集中でポリマー鎖中のループ構造が開裂して段階的に鎖長変化する系でナノレベル機械特性評価

Adhesion & Interfaces
Toughening mechanisms of the elytra of the diabolical ironclad beetle「コブゴミムシダマシの鞘翅の高靭性化機構」
Jesus Rivera, Maryam Sadat Hosseini, David Restrepo, Satoshi Murata, Drago Vasile, Dilworth Y. Parkinson, Harold S. Barnard, Atsushi Arakaki, Pablo Zavattieri & David Kisailus
Nature, Vol 586, 542-548 (2020) |22 October 2020, Published online: 21 October 2020
https://doi.org/10.1038/s41586-020-2813-8
・見過ごしそうな表題の機械工学アプローチによる材料設計、イントロで異種材接合言及、Ref.1 必読
(解説記事)Tough lessons from diabolical beetles「コブゴミムシダマシから得られた靭性に関する教訓」
Po-Yu Chen, *Nature*, Vol 586, 502-504 (2020)
http://fc3949.cuenote.jp/c/abzzaahmjmixeqca

Crystal Engineering & Liquid Crystal
Hydrogen- and Halogen-Bonded Binary Cocrystals with Ditopic Components: Systematic Structural and Photoreactivity Properties That Provide Access to a Completed Series of Symmetrical Cyclobutanes

Jay Quentin and Leonard R. MacGillivray*
Crystal Growth & Design, Articles ASAP (Article), Publication Date (Web): October 16, 2020
https://dx.doi.org/10.1021/acs.cgd.0c01143
・著者らの以前からの一連の固体光二量化反応の研究、オーソドックスな手法で一歩ずつ前進

Bio-based & Biomedical Polymers

Cellular- and Subcellular-Targeted Delivery Using a Simple All-in-One Polymeric Nanoassembly
Jingjing Gao, Kingshuk Dutta, Jiaming Zhuang,* and S. Thayumanavan*
Angew. Chem. Int. Ed. 2020, 59, Version of Record online:23 October 2020
https://doi.org/10.1002/anie.202008272
・両親媒性ブロックポリマーのミクロゲル化疎水コアにドラッグを取り込み、SS 架橋レドックスで放出

General Chemistry & Others

General Synthesis of Nanoporous 2D Metal Compounds with 3D Bicontinous Structure
Dechao Chen, Shoucong Ning, Jiao Lan, Ming Peng, Huigao Duan, Anlian Pan, and Yongwen Tan*
Adv. Mater. 2020, 2004055, Version of Record online:15 October 2020
https://doi.org/10.1002/adma.202004055
・ポリマーとは関係ない論文だが、ナノポーラス金属材料で 3 次元共連続構造体の設計例、図が参考に