**Jong K Keum**

***Neutron Scattering Scientist/X-ray Scattering Scientist***

***Neutron Scattering Division/Center for Nanophase Materials Sciences, Oak Ridge National Laboratory***

**Education**

* ***PhD in Chemistry***, 9/2004-9/2007

State University of New York at Stony Brook

* ***MS in Chemistry***, 9/2002-9/2004

State University of New York at Stony Brook

**Research Experiences**

* **Oak Ridge National Laboratory** 1/2013 – Current

***Research/neutron scattering scientist***, Neutron Scattering Division/Center for Nanophase Materials Sciences

* **Oak Ridge National Laboratory** 8/2010 – 1/2013

***Post Doctorate***, Neutron Scattering Division

* **Case Western Reserve University** 1/2008 - 8/2010

***Post Doctorate***, Macromolecular Science & Engineering

**Research Interests**

* Application of neutron/X-ray scattering/reflectivity/diffraction to studying the structure and morphology of soft matters and nanomaterials
* 1D and 2D X-ray scattering/diffraction modeling and model refinement
* Processing-structure- property of functional nanomaterials and nanocomposites
* Physics of phase transition of polymers
* Polymers and nanocomposites

**Awards, Funding and Honors**

* **2020 Neutron Scattering Division Award: Best Experiment**

“Using Spectroscopy and Calculations to Investigate the Dynamics of Proposed COVID-19 Therapeutics”.

* **2019 UT-Battelle Recognition/Award night: Research Accomplishment**

“The pioneering use of electron microscopy to identify site-specific isotopic labels at nanoscale resolution”.

* **2019 UT-Battelle Recognition/Award night: Director's Award for Outstanding Team Accomplishment**

“An example of appropriately applying the UT-Battelle Safe Conduct of Research Principles, especially 'A healthy respect is maintained for what can go wrong.'”.

* **FY16 Laboratory Directed Research and Development (LDRD 7938) Fund (*PI*)**

“Rational design of deuterated conjugated polymers with controlled spin polarized electron transport”.

* **FY17 Laboratory Directed Research and Development (LDRD 8360) Fund (*co-PI*)**

"Understanding rheology of fiber reinforced soft matter structural composites: From microscopic structures to macroscopic mechanical properties".

* **FY20 Laboratory Directed Research and Development (LDRD 9899) Fund (*co-PI*)**

“Surpassing Stiffness-Extensibility Trade-off in Elastomers”.

* **FY21 Laboratory Directed Research and Development (LDRD 10145) Fund (*co-PI*)**

“Tailoring Morphology for a New Class of Carbon Fibers”.

* **FY21 Laboratory Directed Research and Development (LDRD 10666) Fund (*co-PI*)**

“High Throughput Polymer Characterization”.

* **FY22 Laboratory Directed Research and Development (LDRD 10716) Fund (*co-PI*)**

“High Throughput Polymer Characterization”.

* **Performance Award** (2018), Neutron Science Laboratories, Neutron Science Directorate, Oak Ridge National Laboratory.
* **Distinguished Scientific Paper** (2014), Center for Nanophase Materials Sciences (CNMS), Oak Ridge National Laboratory.
* **Excellence in Doctoral Research** (2008), State University of New York at Stony Brook.

**Skills**

* Small-angle neutron/X-ray scattering (SANS/SAXS), neutron/ X-ray reflectivity (NR/XRR), X-ray diffraction (XRD)
* In-house SAXS instrumentation (Kratky and 3-pinhole camera).
* Wolfram Mathematica: model building and coding for scattering/reflectivity modeling and refinement.
* Igor Pro: model building and coding for data analysis.
* Thermal analysis: DSC and TGA.

**Journal papers**

1. “Polyester-based epoxy vitrimer integrating spent coffee ground as a natural filler”, ***Composites Part B: Engineering*** 260, 110756 (**2023**)
2. “Synthesis and Morphological Characterization of Linear and Miktoarm Star Poly (solketal methacrylate)-block-Polystyrene Copolymers”, Polyxeni P Angelopoulou, Maria-Malvina Stathouraki, Jong K Keum, Kunlun Hong, Apostolos Avgeropoulos, Georgios Sakellariou, ***European Polymer Journal*** 190, 111995, (**2023**).
3. “A Sustainable Multi‐Dimensional Printable Material”, Ngoc A Nguyen, Christopher C Bowland, Lilin He, Naresh C Osti, Minh D Phan, Jong K Keum, Madhusudan Tyagi, Kelly M Meek, Kenneth C Littrell, Eugene Mamontov, John Ankner, Amit K Naskar, ***Advanced Sustainable Systems***, 2300079 (**2023**).
4. “Atmospheric Pressure Plasma Treatment of Magnesium Alloy for Enhanced Coating Adhesion and Corrosion Resistance”, Gyoung Gug Jang, Jiheon Jun, Sinchul Yeom, Mina Yoon, Yi Feng Su, John Wade, Michael S Stephens, Jong K Keum, ***Coatings*** 13 (5), 897 (**2023**)
5. “Photocarrier-induced persistent structural polarization in soft-lattice lead halide perovskites”, Qi Qian, Zhong Wan, Hiroyuki Takenaka, Jong K Keum, Tyler J Smart, Laiyuan Wang, Peiqi Wang, Jingyuan Zhou, Huaying Ren, Dong Xu, Yu Huang, Yuan Ping, Xiangfeng Duan, ***Nature Nanotechnol*ogy** **(2023**). https://doi.org/10.1038/s41565-022-01306-x.
6. “Ultra-fast Microwave Regeneration of CO2 Solid Sorbents for Energy-Efficient Direct Air Capture”, Gyoung G. Jang, Abishek Kasturi, Diāna Stamberga, Radu Custelcean, Jong K.Keum, SotiraYiacoumi, CostasTsouris. ***Separation and Purification Technology*** 309, 123053 (**2023**).
7. "Control of crystallographic orientation in Ruddlesden-Popper for fast oxygen reduction", Yang, Gene; El Loubani, Mohammad; Hill, David; Keum, Jong K; Lee, Dongkyu; ***Catalysis Today*** 409, 87 (**2023**).
8. "Understanding curing dynamics of arylacetylene and phthalonitrile thermoset blends", Laskoski, Matthew; Dyatkin, Boris; Osti, Naresh C; Keum, Jong K; Mamontov, Eugene; Butler, Tristan; ***Journal of Polymer Science*** 61 (2), 132 (**2023**).
9. “Continuous Recovery of Phosphoric Acid and Rare-Earths Containing Particles from Phosphoric Acid Sludge Using a Decanter Centrifuge”, Gyoung G Jang, Austin Ladshaw, Jong K Keum, Joshua A Thompson, Patrick Zhang, Costas Tsouris, ***Chemical Engineering Journal*** 458, 141418 (**2023**)
10. “High-χ diblock copolymers containing poly (vinylpyridine-N-oxide) segments”, Polyxeni P Angelopoulou, Logan T Kearney, Jong K Keum, Liam Collins, Rajeev Kumar, Georgios Sakellariou, Rigoberto C Advincula, Jimmy W Mays, Kunlun Hong, ***Journal of Materials Chemistry A*** 11, 9846-9858 (**2023**)
11. “Formation of carbon and oxygen rich surface layer on high purity magnesium by atmospheric carbon dioxide plasma”, Gyoung G Jang, Sinchul Yeom, Jong K Keum, Mina Yoon, Harry III Meyer, Yi-Feng Su, Jiheon Jun, ***Journal of Magnesium and Alloys*** 11(1), 88 (**2023**).
12. “Alternate Synthesis Method for High-Performance Manganese Rich Cation Disordered Rocksalt Cathodes”, Shripad Patil, Devendrasinh Darbar, Ethan C. Self, Thomas Malkowski, Vincent C. Wu, Raynald Giovine, Nathan J. Szymanski, Rebecca D. McAuliffe, Bo Jiang, Jong K. Keum, Krishna P. Koirala, Bin Ouyang, Katharine Page, Chongmin Wang, Gerbrand Ceder, Raphaële J. Clément, Jagjit Nanda, ***Advanced Energy Materials*** 134 (4), 2203207 (**2023**).
13. “Structure−Dynamics Interrelation Governing Charge Transport in 2 Cosolvated Acetonitrile/LiTFSI Solutions”, Murillo L. Martins, Xiaobo Lin, Catalin Gainaru, Jong K. Keum, Peter T. Cummings, Alexei P. Sokolov, Robert L. Sacci, and Eugene Mamontov, ***The Journal of Physical Chemistry*** 127 (1), 308 (**2022**).
14. "Neutron tomography of porous aluminum electrodes used in electrocoagulation of groundwater", Gyoung Gug Jang, Yuxuan Zhang, Jong K Keum, Yousuf Z Bootwala, Marta C Hatzell, David Jassby, Costas Tsouris, ***Frontiers in Chemical Engineering*** 4, (**2022**)
15. "Discovery of a high-temperature antiferromagnetic state and transport signatures of exchange interactions in a Bi2Se3/EuSe heterostructure", Ying Wang, Valeria Lauter, Olga Maximova, Shiva T Konakanchi, Pramey Upadhyaya, Jong Keum, Haile Ambaye, Jiashu Wang, Maksym Zhukovskyi, Tatyana A Orlova, Badih A Assaf, Xinyu Liu, Leonid P Rokhinson, ***arXiv preprint arXiv***:2207.07685 (**2022**).
16. "Understanding the Fluorination of Disordered Rocksalt Cathodes through Rational Exploration of Synthesis Pathways", Szymanski, Nathan J; Zeng, Yan; Bennett, Tyler; Patil, Shripad; Keum, Jong K; Self, Ethan C; Bai, Jianming; Cai, Zijian; Giovine, Raynald; Ouyang, Bin; ***Chemistry of Materials*** 34 (15), 7015 (**2022**).
17. "Magnetic proximity-induced energy gap of topological surface states", Wang, Jiashu; Wang, Tianyi; Ozerov, Mykhaylo; Zhang, Zhan; Bac, Seul-Ki; Trinh, Hoai; Zhukovskyi, Maksym; Orlova, Tatyana; Ambaye, Haile; Keum, Jong; ***arXiv preprint arXiv***:2207.07685 (**2022**).
18. "Strain-tunable Berry curvature in quasi-two-dimensional chromium telluride", Chi, Hang; Ou, Yunbo; Eldred, Tim B; Gao, Wenpei; Kwon, Sohee; Murray, Joseph; Dreyer, Michael; Butera, Robert E; Ambaye, Haile; Keum, Jong; ***arXiv preprint arXiv***:2207.02318 (**2022**).
19. "Photoinduced iodide repulsion and halides-demixing in layered perovskites", Liu, Yongtao; Wang, Miaosheng; Ievlev, Anton V; Ahmadi, A; Keum, JK; Ahmadi, M; Hu, B; Ovchinnikova, OS; ***Materials Today Nano*** 18, 100197 (**2022**).
20. "Tailoring compatibilization potential of maleic anhydride‐grafted polypropylene by sequential rheochemical processing of polypropylene and polyamide 66 blends", Seo, Jiho; Kearney, Logan T; Datta, Siddhant; Toomey, Michael D; Keum, Jong K; Naskar, Amit K; ***Polymer Engineering & Science*** 62 (8), 2419 (**2022**).
21. "The influence of temperature on the strain-hardening behavior of Fe-22/25/28Mn-3Al-3Si TRIP/TWIP steels", Pierce, Dean T; Benzing, JT; Jiménez, JA; Hickel, Tilmann; Bleskov, Ivan; Keum, Jong; Raabe, Dierk; Wittig, JE; ***Materialia*** 22, 101425 (**2022**).
22. "Ionic Conductivity Enhancement of Polymer Electrolytes by Directed Crystallization", Liu, Changhao; Tang, Xiaomin; Wang, Yangyang; Sacci, Robert L; Bras, Wim; Keum, Jong K; Chen, X Chelsea; ***ACS Macro Letters*** 11(4), 595 (**2022**).
23. "Electroprecipitation Mechanism Enabling Silica and Hardness Removal through Aluminum-Based Electrocoagulation", Liu, Yu-Hsuan; Bootwala, Yousuf Z; Jang, Gyoung Gug; Keum, Jong K; Khor, Chia Miang; Hoek, Eric MV; Jassby, David; Tsouris, Costas; Mothersbaugh, Jim; Hatzell, Marta C; ***ACS ES&T Engineering*** 2(7), 1200 (**2022**).
24. "Reduced Graphene Oxide Aerogels with Functionalization-Mediated Disordered Stacking for Sodium-Ion Batteries", Park, Jaehyeung; Sharma, Jaswinder; Jafta, Charl J; He, Lilin; Meyer III, Harry M; Li, Jianlin; Keum, Jong K; Nguyen, Ngoc A; Polizos, Georgios; ***Batteries*** 8 (2), 12 (**2022**).
25. "Modular Approach for the Synthesis of Bottlebrush Diblock Copolymers from Poly (Glycidyl Methacrylate)-block-Poly (Vinyldimethylazlactone) Backbones", Hu, Bin; Carrillo, Jan-Michael; Collins, Liam; Silmore, Kevin S; Keum, Jong; Bonnesen, Peter V; Wang, Yangyang; Retterer, Scott; Kumar, Rajeev; Lokitz, Bradley S; ***Macromolecules*** 55 (2), 488 (**2022**).
26. "Surpassing the stiffness-extensibility trade-off of elastomers via mastering the hydrogen-bonding clusters", Zhang, Zhen; Luo, Jiancheng; Zhao, Sheng; Ge, Sirui; Carrillo, Jan-Michael Y; Keum, Jong K; Do, Changwoo; Cheng, Shiwang; Wang, Yangyang; Sokolov, Alexei P; ***Matter*** 5(1), 237 (**2022**).
27. "Upcycling of semicrystalline polymers by compatibilization: mechanism and location of compatibilizers", Tang, Xiaomin; Liu, Changhao; Keum, Jong; Chen, Jihua; Dial, Brent E; Wang, Yangyang; Tsai, Wan-Yu; Bras, Wim; Saito, Tomonori; Bowland, Christopher C; ***RSC advances*** 12(18), 10886 (**2022**).
28. "Magnetic charge and geometry confluence for ultra-low forward voltage diode in artificial honeycomb lattice", Yumnam, George; Guo, Jiasen; Chen, Yiyao; Dahal, Ashutosh; Ghosh, Pousali; Cunningham, Quinn; Keum, Jong; Lauter, Valeria; Abdullah, Amjed; Almasri, Mahmoud; ***Materials Today Physics*** 22, 100574 (**2022**).
29. "Strain in metal halide perovskites: the critical role of A-site cation", Liu, Yongtao; Sumpter, Bobby G; Keum, Jong K; Hu, Bin; Ahmadi, Mahshid; Ovchinnikova, Olga S; ***ACS Applied Energy Materials*** 4(3), 2068 (**2021**).
30. "Unraveling the Role of Neutral Units for Single-Ion Conducting Polymer Electrolytes", Zhao, Sheng; Song, Shenghan; Wang, Yingqi; Keum, Jong; Zhu, Jiadeng; He, Yi; Sokolov, Alexei P; Cao, Peng-Fei; ***ACS Applied Materials & Interfaces*** 13 (43), 51525 (**2021**).
31. "Quantum disordered state of magnetic charges in nanoengineered honeycomb lattice", Yumnam, George; Chen, Yiyao; Guo, Jiasen; Keum, Jong; Lauter, Valeria; Singh, Deepak Kumar; ***Advanced Science*** 8(6), 2004103 (**2021**).
32. "Optically Induced Static Magnetization in Metal Halide Perovskite for Spin‐Related Optoelectronics", Wang, Miaosheng; Xu, Hengxing; Wu, Ting; Ambaye, Haile; Qin, Jiajun; Keum, Jong; Ivanov, Ilia N; Lauter, Valeria; Hu, Bin; ***Advanced Science*** 8(11), 2004488 (**2021**).
33. "Influence of Heterointerfaces on the Kinetics of Oxygen Surface Exchange on Epitaxial La1. 85Sr0. 15CuO4 Thin Films", Yang, Gene; Kim, So Yeun; Sohn, Changhee; Keum, Jong K; Lee, Dongkyu; ***Applied Sciences*** 11(9), 3778 (**2021**).
34. "Mechanism of magnetic diode in artificial honeycomb lattice", Yumnam, George; Guo, Jiasen; Chen, Yiyao; Dahal, Ashutosh; Ghosh, Pousali; Cunningham, Quinn; Keum, Jong; Lauter, Valeria; Abdullah, Amjed; Almasri, Mahmoud; ***arXiv preprint arXiv***:2111.02929 (**2021**).
35. "Study of the segmental dynamics and ion transport of solid polymer electrolytes in the semi-crystalline state", Chen, Xi Chelsea; Sacci, Robert L; Osti, Naresh C; Tyagi, Madhusudan; Wang, Yangyang; Keum, Jong K; Dudney, Nancy J; ***Frontiers in Chemistry*** 8, 592604 (**2021**).
36. "Corrosion Prevention of Additively Manufactured Aluminum Packing Devices Developed for Process Intensification of CO2 Capture by Aqueous Amines", Jang, Gyoung G; Jun, Jiheon; Su, Yi-Feng; Keum, Jong K; DeFelice, Vincent; Decarmine, Tony; Jones, Jonaaron; Tsouris, Costas; ***Industrial & Engineering Chemistry Research*** 60(47), 17036 (**2021**).
37. "Nanostructured ligament and fiber Al–doped Li7La3Zr2O12 scaffolds to mediate cathode-electrolyte interface chemistry", Polizos, Georgios; Sharma, Jaswinder; Jafta, Charl J; Muralidharan, Nitin; Veith, Gabriel M; Keum, Jong K; Kukay, Alexander; Sahore, Ritu; Wood III, David L; ***Journal of Power Sources*** 513, 230551 (**2021**).
38. "Multiscale Structural Characterization of a Smectic Liquid Crystalline Elastomer upon Mechanical Deformation Using Neutron Scattering", Li, Yuzhan; Keum, Jong K; Wang, Jun; Jiang, Naisheng; Bras, Wim; Kessler, Michael R; Rios, Orlando; ***Macromolecules*** 54(22), 10574 (**2021**).
39. "Phase segregation mechanisms of small molecule‐polymer blends unraveled by varying polymer chain architecture", Chen, Jihua; Das, Sanjib; Shao, Ming; Li, Guoliang; Lian, Huada; Qin, Jian; Browning, James F; Keum, Jong K; Uhrig, David; Gu, Gong; ***SmartMat*** 2(3), 367 (**2021**).
40. "Understanding functionalization of titanium carbide (MXene) with quinones and their pseudocapacitance", Boota, Muhammad; Urbankowski, Patrick; Porzio, William; Barba, Luisa; Osti, Naresh C; Bleuel, Markus; Keum, Jong K; Mamontov, Eugene; ***ACS Applied Energy Materials*** 3(5), 4127 (**2020**).
41. "Effect of hydration on the molecular dynamics of hydroxychloroquine sulfate", Mamontov, Eugene; Cheng, Yongqiang; Daemen, Luke L; Keum, Jong K; Kolesnikov, Alexander I; Pajerowski, Daniel; Podlesnyak, Andrey; Ramirez-Cuesta, Anibal J; Ryder, Matthew R; Stone, Matthew B; ***ACS omega*** 5(33), 21231 (**2020**).
42. "Structural insights into low and high recalcitrance natural poplar variants using neutron and X-ray scattering", Shah, Riddhi; Bhagia, Samarthya; Keum, Jong K; Pingali, Sai Venkatesh; Ragauskas, Arthur J; Davison, Brian H; O’Neill, Hugh; ***ACS Sustainable Chemistry & Engineering*** 8(36), 13838 (**2020**).
43. "Strain–chemical gradient and polarization in metal halide perovskites", Liu, Yongtao; Ievlev, Anton V; Collins, Liam; Belianinov, Alex; Keum, Jong K; Ahmadi, Mahshid; Jesse, Stephen; Retterer, Scott T; Xiao, Kai; Huang, Jingsong; ***Advanced Electronic Materials*** 6(4), 1901235 (**2020**).
44. "Effects of graphene surface functionalities towards controlled reinforcement of a lignin based renewable thermoplastic rubber", Jang, Gyoung G; Nguyen, Ngoc A; Bowland, Christopher C; Ho, Hoi Chun; Keum, Jong K; Naskar, Amit K; ***Composites Science and Technology*** 199, 108352 (**2020**).
45. "Continuous-flow centrifugal solid/liquid separation for the recovery of rare-earth elements containing particles from phosphoric acid sludge", Cao, Xinxiang; Lyu, Tengteng; Xie, Wentao; Mirjalili, Arash; Bradicich, Adelaide; Huitema, Ricky; Jang, Ben W-L; Keum, Jong K; More, Karren; Liu, Changjun; "Preparation and investigation of Pd doped Cu catalysts for selective hydrogenation of acetylene", ***Frontiers of Chemical Science and Engineering*** 14(4), 522 (**2020**).
46. "Continuous-flow centrifugal solid/liquid separation for the recovery of rare-earth elements containing particles from phosphoric acid sludge", Jang, Gyoung G; Ladshaw, Austin; Keum, Jong K; Zhang, Patrick; Tsouris, Costas; ***Industrial & Engineering Chemistry Research*** 59(50), 21901 (**2020**).
47. "Symmetry degeneration and room temperature ferroelectricity in ion-irradiated SrTiO3", Zhang, FX; Xue, Haizhou; Keum, Jong K; Boulle, Alexandre; Zhang, Yanwen; Weber, WJ; ***Journal of Physics: Condensed Matter*** 32(35), 355405 (**2020**).
48. "Fractionation of Lignin for Selective Shape Memory Effects at Elevated Temperatures", Nguyen, Ngoc A; Bowland, Christopher C; Bonnesen, Peter V; Littrell, Kenneth C; Keum, Jong K; Naskar, Amit K; ***Materials*** 13(8), 1940 (**2020**).
49. "Unusual electrical conductivity driven by localized stoichiometry modification at vertical epitaxial interfaces", Zhang, Wenrui; Cheng, Shaobo; Rouleau, Christopher M; Kelley, Kyle P; Keum, Jong; Stavitski, Eli; Zhu, Yimei; Chisholm, Matthew F; Gai, Zheng; Eres, Gyula; ***Materials Horizons*** 7(12), 3217(**2020**).
50. "Styrene-based elastomer composites with functionalized graphene oxide and silica nanofiber fillers: Mechanical and thermal conductivity properties", Park, Jaehyeung; Sharma, Jaswinder; Monaghan, Kyle W; Meyer III, Harry M; Cullen, David A; Rossy, Andres M; Keum, Jong K; Wood III, David L; Polizos, Georgios; ***Nanomaterials*** 10(9), 1682 (**2020**).
51. "Synthesis and catalytic performance of polydopamine supported metal nanoparticles", Li, Haoqi; Xi, Jiaxin; Donaghue, Adrienne G; Keum, Jong; Zhao, Yao; An, Ke; McKenzie, Erica R; Ren, Fei; ***Scientific reports*** 10(1), Jan 7th(**2020**).
52. "Liquid crystalline networks based on photo-initiated thiol–ene click chemistry", Li, Yuzhan; Zhang, Yuehong; Goswami, Monojoy; Vincent, Dan; Wang, Liwei; Liu, Tuan; Li, Kai; Keum, Jong K; Gao, Zhenhua; Ozcan, Soydan; ***Soft Matter*** 16(7), 1760 (**2020**).
53. "Light‐ferroic interaction in hybrid organic–inorganic perovskites", Liu, Yongtao; Ievlev, Anton V; Collins, Liam; Borodinov, Nikolay; Belianinov, Alex; Keum, Jong K; Wang, Miaosheng; Ahmadi, Mahshid; Jesse, Stephen; Xiao, Kai; ***Advanced Optical Materials*** 7(23), 1901451 (**2019**).
54. "Strain engineering 4H-SiC with ion beams", Zhang, FX; Tong, Yang; Xue, Haizhou; Keum, Jong K; Zhang, Yanwen; Boulle, Alexandre; Debelle, Aurelien; Weber, William J; ***Applied Physics Letters*** 114(22), 221904, (**2019**).
55. "Effect of electronic energy dissipation on strain relaxation in irradiated concentrated solid solution alloys" Sellami, Neila; Debelle, Aurélien; Ullah, Mohammad W; Christen, Hans M; Keum, Jong K; Bei, Hongbin; Xue, Haizhou; Weber, William J; Zhang, Yanwen; ***Current Opinion in Solid State and Materials Science*** 23(2), 107 (**2019**).
56. "Efficient solar‐thermal distillation desalination device by light absorptive carbon composite porous foam", Jang, Gyoung Gug; Klett, James William; McFarlane, Joanna; Ievlev, Anton; Xiao, Kai; Keum, Jong K; Yoon, Mina; Im, Piljae; Hu, Michael Z; Parks, James E; ***Global Challenges*** 3(8), 1900003 (**2019**).
57. "A fundamental understanding of whole biomass dissolution in ionic liquid for regeneration of fiber by solution-spinning", Nguyen, Ngoc A; Kim, Keonhee; Bowland, Christopher C; Keum, Jong K; Kearney, Logan T; André, Nicolas; Labbé, Nicole; Naskar, Amit K; ***Green Chemistry*** 21(16), 4354 (**2019**).
58. "Method to synthesize micronized spherical carbon particles from lignin", Ho, Hoi Chun; Bonnesen, Peter V; Nguyen, Ngoc A; Cullen, David A; Uhrig, David; Goswami, Monojoy; Keum, Jong K; Naskar, Amit K; ***Industrial & Engineering Chemistry Research*** 59 (1), 9 (**2019**).
59. "Uniform permutation of quasi-2D perovskites by vacuum poling for efficient, high-fill-factor solar cells", Zhang, Jia; Qin, Jiajun; Wang, Miaosheng; Bai, Yujie; Zou, Han; Keum, Jong Kahk; Tao, Runming; Xu, Hengxing; Yu, Haomiao; Haacke, Stefan; ***Joule*** 3(12), 3061 (**2019**).
60. "Side chain dynamics in semiconducting polymer MEH‐PPV", Osti, Naresh C; Mamontov, Eugene; Daemen, Luke; Browning, James F; Keum, Jong; Ho, Hoi Chun; Chen, Jihua; Hong, Kunlun; Diallo, Souleymane O; ***Journal of Applied Polymer Science*** 136(14), 47394 (**2019**).
61. "Isotope Effects on the Crystallization Kinetics of Selectively Deuterated Poly (ε‐Caprolactone)", Li, Lengwan; Chang, Dongsook; Arras, Matthias ML; Li, Wei; Li, Tianyu; Keum, Jong K; Bonnesen, Peter V; Peng, Xiangfang; Hong, Kunlun; ***Journal of Polymer Science Part B: Polymer Physics*** 57(12), 771(**2019**).
62. "Cation molecular structure affects mobility and transport of electrolytes in porous carbons", Osti, Naresh C; Dyatkin, Boris; Gallegos, Alejandro; Voneshen, David; Keum, Jong K; Littrell, Ken; Zhang, Pengfei; Dai, Sheng; Wu, Jianzhong; Gogotsi, Yury; ***Journal of The Electrochemical Society*** 166(4), A507 (**2019**).
63. "An Ionomeric Renewable Thermoplastic from Lignin‐Reinforced Rubber", Barnes, Sietske H; Goswami, Monojoy; Nguyen, Ngoc A; Keum, Jong K; Bowland, Christopher C; Chen, Jihua; Naskar, Amit K***; Macromolecular rapid communications*** 40 (13), 1900059 (**2019**).
64. "Damage-Free Nanoscale Isotopic Analysis of Biological Materials with Vibrational Electron Spectroscopy", Hachtel, Jordan A; Huang, Jingsong; Popovs, Ilja; Jansone-Popova, Santa; Keum, Jong K; Jakowski, Jacek; Lovejoy, Tracy C; Dellby, Niklas; Krivanek, Ondrej L; Idrobo, Juan Carlos; ***Microscopy and Microanalysis*** 25(S2), 1088 (**2019**).
65. "Transparent superhydrophilic and superhydrophobic nanoparticle textured coatings: comparative study of anti-soiling performance", Jang, Gyoung Gug; Smith, D Barton; Polizos, Georgios; Collins, Liam; Keum, Jong K; Lee, Dominic F; ***Nanoscale Advances*** 1(3), 1249, (**2019**).
66. "Alternating crystalline lamellar structures from thermodynamically miscible poly (ε-caprolactone) H/D blends", Li, Lengwan; Arras, Matthias ML; Li, Tianyu; Li, Wei; Chang, Dongsook; Keum, Jong K; Bonnesen, Peter V; Qian, Shuo; Peng, Xiangfang; Lee, Byeongdu; ***Polymer*** 175, 320, (**2019**).
67. "Identification of site-specific isotopic labels by vibrational spectroscopy in the electron microscope", Hachtel, Jordan A; Huang, Jingsong; Popovs, Ilja; Jansone-Popova, Santa; Keum, Jong K; Jakowski, Jacek; Lovejoy, Tracy C; Dellby, Niklas; Krivanek, Ondrej L; Idrobo, Juan Carlos; ***Science*** 363(6426) 525 (**2019**).
68. “Organohalide Perovskites: Real‐Time Observation of Order‐Disorder Transformation of Organic Cations Induced Phase Transition and Anomalous Photoluminescence in Hybrid Perovskites”, Yang, Bin; Ming, Wenmei; Du, Mao‐Hua; Keum, Jong K; Puretzky, Alexander A; Rouleau, Christopher M; Huang, Jinsong; Geohegan, David B; Wang, Xiaoping; Xiao, Kai, ***Advanced Materials*** 30(22), 1870158 (**2018**).
69. “Rigid oligomer from lignin in designing of tough, self-healing elastomers”, Cui, Mengmeng; Nguyen, Ngoc A; Bonnesen, Peter V; Uhrig, David; Keum, Jong K; Naskar, Amit K, ***ACS Macro Letters*** 7, 11, 1328 (**2018**).
70. “A path for lignin valorization via additive manufacturing of high-performance sustainable composites with enhanced 3D printability”, Osti, Naresh C; Thompson, Matthew W; Van Aken, Katherine L; Alhabeb, Mohamed; Tyagi, Madhusudan; Keum, Jong-Kahk; Cummings, Peter T; Gogotsi, Yury; Mamontov, Eugene, ***The Journal of Physical Chemistry C*** 122, 48, 27561 (**2018**)
71. “Amphiphilic bottlebrush block copolymers: Analysis of aqueous self-assembly by small-angle neutron scattering and surface tension measurements”, Alaboalirat, Mohammed; Qi, Luqing; Arrington, Kyle J; Qian, Shuo; Keum, Jong K; Mei, Hao; Littrell, Kenneth C; Sumpter, Bobby G; Carrillo, Jan-Michael Y; Verduzco, Rafael, ***Macromolecules*** 52, 2, 465 (**2018**)
72. “Selectively Deuterated Poly(ε-caprolactone)s: Synthesis and Isotope Effects on the Crystal Structures and Properties” Dongsook Chang, Tianyu Li, Lengwan Li, Jacek Jakowski, Jingsong Huang, Jong Keum, Byeongdu Lee, Peter Bonnesen, Mi Zhou, Sophya Garashchuk, Bobby Sumpter, Kunlun Hong, ***Macromolecules*** 51 (22), 9393 (**2018**).
73. “Revealing the Structural Stability and Na-Ion Mobility of 3D Superionic Conductor Na3SbS4 at Extremely Low Temperatures”, Hui Wang, Yan Chen, Zachary D Hood, Jong K Keum, Amaresh Samuthira Pandian, Miaofang Chi, Ke An, Chengdu Liang, Mahendra K Sunkara, ***ACS Applied Energy Materials***1 (12), 7028 (**2018**).
74. “Rheology, crystal structure, and nanomechanical properties in large-scale additive manufacturing of polyphenylene sulfide/carbon fiber composites”, Peng Liu, Ralph B Dinwiddie, Jong K Keum, Rama K Vasudevan, Stephen Jesse, Ngoc A Nguyen, John M Lindahl, Vlastimil Kunc, ***Composites Science and Technology*** 168, 263 (**2018**).
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