

# Myungeun Seo

Associate Professor  
Department of Chemistry  
Korea Advanced Institute of Science and Technology (KAIST)



**ADDRESS** Room 202, Basic Science Building (E6-6), KAIST  
291 Daehak-ro, Yuseong-gu, Daejeon 34141, Republic of Korea

**PHONE** 82-42-350-2814

**EMAIL** seomyungeun@kaist.ac.kr

## APPOINTMENTS

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Department of Chemistry, KAIST	
Associate Professor	2020 – present
KI for the Nanocentury, KAIST	
Adjunct Professor	2013 - present
Graduate School of Nanoscience and Technology, KAIST	
Assistant, Associate Professor	2013 – 2020
Department of Chemistry, University of Minnesota	
Postdoctoral Associate (Advisor: Marc A. Hillmyer)	2009 – 2013
Department of Chemistry, KAIST	
Postdoctoral Associate (Advisor: Sang Youl Kim)	2008 – 2009

## EDUCATION

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Department of Chemistry, KAIST	
Ph.D., M.S (Advisor: Sang Youl Kim)	2008, 2004
Materials Research Laboratory, University of California Santa Barbara	
Visiting Scientist (Advisor: Craig J. Hawker)	2007
Department of Organic and Polymeric Materials, Tokyo Institute of Technology	
Exchange Scientist (Advisor: Masa-aki Kakimoto)	2004 – 2005
Department of Chemistry, KAIST	
B.S. (University Salutatorian)	2002

## SHORT BIOGRAPHY

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Myungeun Seo is a polymer chemist interested in controlled polymer synthesis, molecular self-assembly, and porous polymers for environmental and energy applications. He has published more than 70 papers in peer-reviewed journals. He is a recipient of Wiley-PSK JPS Young Scientist Award (2015) and KAIST EWon Assistant Professorship (2015-2018), and also won lectureship awards from the Society of Polymer Science, Japan (2017) and the Chemical Society of Japan (2019). His interviews have been featured in *Wiley Asia Blog* (2015), *Asian Scientist Magazine* (as “Asia’s Rising Scientists”, 2016), and *Nature* (2018). He serves *Macromolecules* as a member of the Editorial Advisory Board since 2019.

## HONORS AND AWARDS

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KAIST KI for the Nanocentury 9<sup>th</sup> Fusion Research Award, KAIST (2019)  
Lectureship of Asian International Symposium, 99<sup>th</sup> Meeting of the Chemical Society of Japan (2019)  
Young-Scientist Invited Lecturer, MEP-2018 (2018)  
Invited Lecturer from Young Scientists, 66<sup>th</sup> Meeting of the Society of Polymer Science, Japan (2018)  
2016 Distinguished Teaching Award (Graduate School), College of Natural Sciences, KAIST (2017)  
2015 Wiley-PSK JPS Young Scientist Award (2015)  
2014 Distinguished Teaching Award (Graduate School), College of Natural Sciences, KAIST (2015)  
EWon Assistant Professorship, KAIST (2015-2018)  
Chief Director Award for Graduation (University Salutatorian), KAIST (2002)

## PEER-REVIEWED JOURNAL PUBLICATIONS

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72. "Surface modification of parylene C film via Buchwald–Hartwig amination for organic solvent-compatible and flexible microfluidic channel bonding", Chinnadurai Satheeshkumar, Bum-Joon Jung, Hansol Jang, Wonhee Lee\*, **Myungeun Seo\***, *Macromol. Rapid Commun.* ASAP (Invited Paper to a Special Issue "Young Talents in polymer Science").
71. "Core hyper-cross-linked star polymers from block polymer micelle precursors", Jongmin Park, Stefan J. D. Smith, Colin D. Wood, Xavier Mulet and **Myungeun Seo\***, *Polym. Chem.* 11, 7178-7184 (Invited Paper to a Special Issue "Pioneering Investigators 2021").
70. "Pore engineering of covalently connected metal-organic framework nanoparticle–mixed-matrix membrane composites for molecular separation", Jooyeon Lee, Chinnadurai Satheeshkumar, Hyun Jung Yu, Seongwoo Kim, Jong Suk Lee\*, **Myungeun Seo\*** and Min Kim\*, *ACS Appl. Nano Mater.* 3, 9356-9362 (2020).
69. "Dynamic metal-polymer interaction for the design of chemoselective and long-lived hydrogenation catalysts", Songhyun Lee, Seung-Jae Shin, Hoyong Baek, Yeonwoo Choi, Kyunglim Hyun, **Myungeun Seo**, Kyunam Kim, Dong-Yeun Koh, Hyungjun Kim\* and Minkee Choi\*, *Sci. Adv.* 6, eabb7369 (2020).
68. "Air-stable perovskite nanostructures with dimensional tunability by polymerizable structure-directing ligands", Jinwoo Byun, Chinnadurai Satheeshkumar, Gil Yong Lee, Jaehoon Oh, Dong Hoon Jung, **Myungeun Seo\*** and Sang Ouk Kim\*, *ACS Appl. Mater. Interfaces* 12, 31770-31775 (2020).
67. "Synthesis of in-situ microphase separated organic-inorganic block polymer precursors to 3d-continuous mesoporous sic-based ceramic monoliths", Yoon-Ho Hwang, Jaehoon Oh, Hyungju Ahn, Dong-Pyo Kim\* and **Myungeun Seo\***, *ACS Appl. Polym. Mater.* 2, 2802-2809 (2020) (selected as a Supplementary Cover).
66. "Cross-linking polymerization-induced self-assembly to branched core cross-linked star block polymer micelles", Jongmin Park, Nam Young Ahn and **Myungeun Seo\***, *Polym. Chem.* 11, 4335-4343.
65. "Achieving fast proton transport and high vanadium ion rejection with uniformly mesoporous composite membranes for high-efficiency vanadium redox flow batteries", Choongseop Jen, Chanyong Choi, Hee-Tak Kim\* and **Myungeun Seo\***, *ACS Appl. Energy Mater.* 3, 5874-5881 (2020).
64. "VATA: a poly(vinyl alcohol)- and tannic acid-based nontoxic underwater adhesive", Daiheon Lee, Honggu Hwang, Jun-Sung Kim, Jongmin Park, Donghwan Youn, Duhwan Kim, Jungseok Hahn, **Myungeun Seo** and Haeshin Lee\*, *ACS Appl. Mater. Interfaces* 12, 20933-20941 (2020).
63. "Synthesis of heterograft copolymers with a semifluorinated backbone by combination of grafting-through and grafting-from polymerizations", Jeonghyeon Lee, Gérald Lopez, Bruno Améduri\* and **Myungeun Seo\***, *Macromolecules* 53, 2811-2821 (2020).

62. "Synthesis of regiocontrolled triarylamine-based polymer with a naphthol unit", Jinhee Lee, Jeyoung Park, Hojung Choi, Young Rok Yoon, **Myungeun Seo**, Sua Song, Byung-Kwon Kim and Sang Youl Kim\*, *Polym. Bull.* ASAP.
61. "Viscosifying a Noncovalently Joined Polymer Nanoparticle Solution upon Heating", Isaac Shin and **Myungeun Seo\***, *Macromolecules* 53, 965-972 (2020).
60. "Double-activated nucleophilic aromatic substitution polymerization by bis-ortho-trifluoromethyl groups to soluble para-poly(biphenylene oxide)", Suhyeon Lee, Rokam Jeong, **Myungeun Seo\***, and Hee-Seung Lee\*, *Polymer* 118, 122124 (2020).
59. "Self-assembly of monolayer vesicles via backbone-shiftable synthesis of Janus core-shell bottlebrush polymer", Jiyun Nam, YongJoo Kim, Jeung Gon Kim, and **Myungeun Seo\***, *Macromolecules* 52, 9484-9494 (2019) (selected as a Front Cover).
58. "The heavy-atom effect on xanthene dyes for photopolymerization by visible light", Jieun Yoon, Young Jae Jung, Joon Bo Yoon, Kongara Damodar, Hyungwook Kim, Minjoong Shin, **Myungeun Seo**, Dae Won Cho, Jeong Tae Lee, and Jungkyu K. Lee\*, *Polym. Chem.* 10, 5737-5742 (2019).
57. "Synthetic route-dependent intramolecular segregation in heteroarm core cross-linked star polymers as Janus-like nanoobjects", Nam Young Ahn and **Myungeun Seo\***, *Polym. Chem.* 11, 449-460 (2020) (Invited Paper to a Special Issue "Emerging Investigators 2020").
56. "Well-defined poly(ether sulfone)-b-poly(lactide): synthesis and microphase separation behavior", Jinhee Lee, Jongmin Park, and **Myungeun Seo\***, *Polym. J.* 52, 111-118 (2020) (Invited Paper to a Special Issue "Precision Polymer Synthesis").
55. "Synthesis of polypropylene via catalytic deoxygenation of poly(methyl acrylate)", Choongseop Jeon, Dong Wook Kim, Sukbok Chang\*, Jeung Gon Kim\* and **Myungeun Seo\***, *ACS Macro Lett.* 8, 1172-1178 (2019).
54. "Nanoporous poly(ether sulfone) from poly(lactide)-b-poly(ether sulfone)-b-poly(lactide) precursor", Jinhee Lee, Jongmin Park, Jaehoon Oh, Sanghwa Lee, Sang Youl Kim and **Myungeun Seo\***, *Polymer* 180, 121704 (2019).
53. "High-conductivity electrolyte gate dielectrics based on poly(styrene-co-methyl methacrylate)/ionic liquid", Donghui Lee, Yunji Jung, Myeongjin Ha, Hyungju Ahn, Keun Hyung Lee\* and **Myungeun Seo\***, *J. Mater. Chem. C* 7, 6950-6955 (2019).
52. "Hyper-cross-linked polymer with enhanced porosity by *in situ* removal of trimethylsilyl group via electrophilic aromatic substitution", Jeonghyeon Lee and **Myungeun Seo\***, *ACS Macro Lett.* 7, 1448-1454 (2018).
51. "Creation of micropores by RAFT copolymerization of conjugated multi-vinyl cross-linkers", Chinnadurai Satheshkumar and **Myungeun Seo\***, *Polym. Chem.* 9, 5680-5689 (2018).
50. "Control of ion transport in sulfonated mesoporous polymer membranes", Choongseop Jeon, Joong Jin Han, and **Myungeun Seo\***, *ACS Appl. Mater. Interfaces* 10, 40854-40862 (2018).
49. "Poly(amide-imide) materials for transparent and flexible displays", Sun Dal Kim, Byungyong Lee, Taejoon Byun, Im Sik Chung, Jongmin Park, Isaac Shin, Nam Young Ahn, **Myungeun Seo**, Yunho Lee, Yeonjoon Kim, Woo Youn Kim, Hyukyung Kwon, Hanul Moon, Seunghyup Yoo, and Sang Youl Kim\*, *Sci. Adv.* 4, eaau1956 (2018).
48. "Transparent poly(amide-imide)s containing trifluoromethyl groups with high glass transition temperature", Byungyong Lee, Sun Dal Kim, Jongmin Park, Taejoon Byun, Seong Jong Kim, **Myungeun Seo**, and Sang Youl Kim\*, *J. Polym. Sci. Part A: Polym. Chem.* 56, 1782-1786 (2018).
47. "Shift of the branching point of the side-chain in naphthalenediimide (NDI)-based polymer for enhanced electron mobility and all-polymer solar cell performance", Hoseon You, Donguk Kim, Han-Hee Cho, Changyeon Lee, Sanggyu Chong, Nam Young Ahn, **Myungeun Seo**, Jihan Kim, Felix Sunjoo Kim\*, and Bumjoon J. Kim\*, *Adv. Funct. Mater.* 28, 1803613 (2018).

46. "Synthesis and phase transition behavior of well-defined poly(arylene ether sulfone)s by chain growth condensation polymerization in organic media", Jinhee Lee, Byungyong Lee, Jeyoung Park, Jaehoon Oh, Taehyoung Kim, **Myungeun Seo**, and Sang Youl Kim\*, *Polymer* 153, 430-437 (2018).
45. "Thiol-ene photopolymerization of vinyl-functionalized metal-organic framework towards mixed-matrix membranes", Chinnadurai Satheeshkumar, Hyun Jung Yu, Hyojin Park, Min Kim\*, Jong Suk Lee\*, and **Myungeun Seo\***, *J. Mater. Chem. A* 6, 21961-21968 (2018) (selected as a Back Cover).
44. "A blending mechanism of PS-b-PEO and PS homopolymer at the air/water interface and their morphology control", Baekmin Q. Kim, Yunji Jung, **Myungeun Seo\***, and Siyoung Q. Choi\*, *Langmuir* 34, 10293-10301 (2018).
43. "Hyper-cross-linked polymer with controlled multiscale porosity via polymerization-induced microphase separation within high internal phase emulsion", Jongmin Park, KyuHan Kim, and **Myungeun Seo\***, *Chem. Commun.* 54, 7908-7911 (2018).
42. "Load-bearing supercapacitor based on bicontinuous PEO-b-P(S-co-DVB) structural electrolyte integrated with conductive nanowire-carbon fiber electrodes", Seok-Hu Bae, Choongseop Jeon, Saewoong Oh, Chun-Gon Kim, **Myungeun Seo\***, and Il-Kwon Oh\*, *Carbon* 139, 10-20 (2018).
41. "Observing phase transition of a temperature-responsive polymer using electrochemical collisions on an ultramicroelectrode", Nhung T. T. Hoang, Jinhee Lee, Byungyong Lee, Hae-Young Kim, Jungeun Lee, Truc Ly Nguyen, **Myungeun Seo**, Sang Youl Kim\*, and Byung-Kwon Kim\*, *Anal. Chem.* 90, 7261-7266 (2018).
40. "Control of porosity in hierarchically porous polymers derived from hyper-crosslinked block polymer precursors", Soobin Kim and **Myungeun Seo\***, *J. Polym. Sci. Part A: Polym. Chem.* 56, 900-913 (2018) (selected as a Front Cover).
39. "Semipermeable microcapsules with a block polymer-templated nanoporous membrane", Jaehoon Oh, Bomi Kim, Sangmin Lee, Shin-Hyun Kim\*, and **Myungeun Seo\***, *Chem. Mater.* 30, 273-279 (2018).
38. "Effect of homopolymer in polymerization-induced microphase separation process", Jongmin Park, Stacey A. Saba, Marc A. Hillmyer\*, Dong-Chang Kang, and **Myungeun Seo\***, *Polymer* 126, 338-351 (2017) (Invited Paper to a Special Issue "Porous Polymers").
37. "Synthesis of coil-comb block copolymers containing polystyrene coil and poly(methyl methacrylate) side chains via atom transfer radical polymerization", Seonhee Shin, Seohyun Moon, **Myungeun Seo\***, and Sang Youl Kim\*, *J. Polym. Sci., Part A: Polym. Chem.* 54, 2971-2983 (2016).
36. "Heteroarm core cross-linked star polymers via RAFT copolymerization of styrene and bismaleimide", Nam Young Ahn and **Myungeun Seo\***, *RSC Adv.* 6, 47715-47722 (2016).
35. "Photoinitiated polymerization-induced microphase separation for the preparation of nanoporous polymer films", Jaehoon Oh and **Myungeun Seo\***, *ACS Macro Lett.* 4, 1244-1248 (2015).
34. "Synthesis and self-assembly of partially sulfonated poly(arylene ether sulfone)s and their role in formation of Cu<sub>2</sub>S nanowires", Jeyoung Park, Changjun Park, Byoung Tak Yim, **Myungeun Seo\***, and Sang Youl Kim\*, *RSC Adv.* 5, 53611-53617 (2015).
33. "Induction and control of supramolecular chirality by light in self-assembled helical nanostructures", Jisung Kim, Jinhee Lee, Woo Young Kim, Hyungjun Kim, Sanghwa Lee, Hee Chul Lee, Yoon Sup Lee, **Myungeun Seo\*** and Sang Youl Kim\*, *Nat. Commun.* 486, 29-39 (2015).
32. "The polymeric upper bound for N<sub>2</sub>/NF<sub>3</sub> separation and beyond; ZIF-8 containing mixed matrix membranes", Sunghwan Park, Woo Ram Kang, Hyuk Taek Kwon, Soobin Kim, **Myungeun Seo**, Joona Bang, Sang hyup Lee, Hae Kwon Jeong\* and Jong Suk Lee\*, *J. Membr. Sci.* 486, 29-39 (2015).
31. "Hierarchically porous polymers from hyper-cross-linked block polymer precursors", **Myungeun Seo\***, Soobin Kim, Jaehoon Oh, Sun-Jung Kim and Marc A. Hillmyer, *J. Am. Chem. Soc.* 137, 600-603 (2015).

30. "Interfacial polymerization of reactive block polymers for the preparation of composite ultrafiltration membranes", **Myungeun Seo**, David Moll, Craig Silvis, Abhishek Roy, Sarah Querelle and Marc A. Hillmyer\*, *Ind. Eng. Chem. Res.* 53, 18575-18579 (2014).
29. "Synthesis of triarylamine-based alternating copolymers for polymeric solar cell", Jinhee Lee, Hyojung Cha, Hoyoul Kong, **Myungeun Seo**, Jaewon Heo, In Hwan Jung, Jisung Kim, Hong-Ku Shim, Chan Eon Park\* and Sang Youl Kim\*, *Polymer* 55, 4837-4845 (2014).
28. "Optimization of long-range order in solvent vapor annealed poly(styrene)-block-poly(lactide) thin films for nanolithography", A. Baruth, **Myungeun Seo**, Chun Hao Lin, Kern Walster, Arjun Shankar, Marc A. Hillmyer\* and C. Leighton\*, *ACS Appl. Mater. Interfaces* 6, 13770-13781 (2014).
27. "Synthesis of triarylamine-containing poly(arylene ether)s by nucleophilic aromatic substitution reaction", Jinhee Lee, Jaewon Heo, Changjun Park, Byung-Kwon Kim, Juhyoun Kwak, **Myungeun Seo\*** and Sang Youl Kim\*, *J. Polym. Sci. Part A: Polym. Chem.* 52, 2692-2702 (2014).
26. "RAFT Copolymerization of acid chloride-containing monomers", **Myungeun Seo** and Marc A. Hillmyer\*, *Polym. Chem.* 5, 213-219 (2014).
25. "Magnetic Microrheology of block copolymer solution", Jin Chul Kim, **Myungeun Seo**, Marc A. Hillmyer\* and Lorraine F. Francis\*, *ACS Appl. Mater. Interfaces* 5, 11877-11883 (2013).
24. "One-step synthesis of cross-linked block polymer precursor to a nanoporous thermoset", **Myungeun Seo**, Christopher J. Murphy and Marc A. Hillmyer\*, *ACS Macro Lett.* 2, 617-620 (2013).
23. "Synthesis of block polymer miktobrushes", Adam O. Moughton, Takanori Sagawa, William M. Gramlich, **Myungeun Seo**, Timothy P. Lodge\* and Marc A. Hillmyer\*, *Polym. Chem.* 4, 166-173 (2013).
22. "Dual-mode fluorescence switching induced by self-assembly of well-defined poly(arylene ether sulfone)s containing pyrene and amide moieties", Jeyoung Park, Jisung Kim, **Myungeun Seo**, Jinhee Lee and Sang Youl Kim\*, *Chem. Commun.* 48, 10556-10558 (2012).
21. "Particle and breath figure formation of triblock copolymers having self-complementary hydrogen-bonding units", Nojin Park, **Myungeun Seo** and Sang Youl Kim\*, *J. Polym. Sci., Part A: Polym. Chem.* 50, 4408-4414 (2012).
20. "Reticulated nanoporous polymers by controlled polymerization-induced microphase separation", **Myungeun Seo** and Marc A. Hillmyer\*, *Science* 336, 1422-1425 (2012).
19. "Self-assembly driven by an aromatic primary amide motif", **Myungeun Seo**, Jeyoung Park and Sang Youl Kim\*, *Org. Biomol. Chem.* 10, 5332-5342 (2012) (Perspective Article).
18. "Photoinduced reversible transmittance modulation of rod-coil type diblock copolymers containing azobenzene in the main chain", Jaewon Heo, Yun Jun Kim, **Myungeun Seo**, Seonhee Shin and Sang Youl Kim\*, *Chem. Commun.* 48, 3351-3353 (2012).
17. "Cross-linked nanoporous materials from reactive and multifunctional block polymers", **Myungeun Seo**, Mark A. Amendt and Marc A. Hillmyer\*, *Macromolecules* 44, 9310-9318 (2011).
16. "Synthesis and self-assembly of diblock copolymers composed of poly(3-hexylthiophene) and poly(fluorooctyl methacrylate) segments", MD. Harun-Or Rashid, **Myungeun Seo**, Sang Youl Kim, Yeong-Soon Gal, Jong Myung Park, Eun Young Kim, Won-Ki Lee and Kwon Taek Lim\*, *J. Polym. Sci., Part A: Polym. Chem.* 49, 4680-4686 (2011).
15. "Synthesis and physical gelation induced by self-assembly of well-defined poly(arylene ether sulfone)s with various numbers of arms", Jeyoung Park, Hyungsam Choi, **Myungeun Seo** and Sang Youl Kim\*, *Polym. Chem.* 2, 1174-1179 (2011).
14. "Synthesis and properties of diblock copolymers containing poly(3-hexylthiophene) and poly(fluorooctyl methacrylate)", Harun-Or Rashid, Md., **Myungeun Seo**, Sang Youl Kim, Yeong-Soon Gal and Kwon Taek Lim\*, *J. Nanosci. Nanotechnol.* 11, 1696-1700 (2011).

13. "Application of polyaniline to an enzyme-amplified electrochemical immunosensor as an electroactive report molecule", Seong Jung Kwon, **Myungeun Seo**, Haesik Yang, Sang Youl Kim and Juhyoun Kwak\*, *Bull. Kor. Chem. Soc.* 31, 3103–3108 (2010).
12. "Well-defined rod-coil star diblock copolymers as a new class of unimolecular micelles: encapsulation of guests and thermoresponsive phase transition", Jeyoung Park, Mihee Moon, **Myungeun Seo**, Hyungsam Choi and Sang Youl Kim\*, *Macromolecules* 43, 8304–8313 (2010).
11. "Physical gelation of polar aprotic solvents induced by hydrogen bonding modulation of polymeric molecules", Duyoun Ka, **Myungeun Seo**, Hyungsam Choi and Sang Youl Kim\*, *Chem. Commun.* 46, 5722–5724 (2010).
10. "Synthesis of well-defined rod-coil block copolymers containing trifluoromethylated poly(phenylene oxide)s by chain-growth condensation polymerization and atom transfer radical polymerization", Yun Jun Kim, **Myungeun Seo** and Sang Youl Kim\*, *J. Polym. Sci., Part A: Polym. Chem.* 48, 1049–1057 (2010).
9. "Self-association of bis-dendritic gelators: the effect of dendritic architecture on multivalent cooperative interactions", **Myungeun Seo**, Jung Hak Kim, Jisung Kim, Nojin Park, Jeyoung Park and Sang Youl Kim\*, *Chem. Eur. J.* 16, 2427–2441 (2010).
8. "Surface-independent vertical orientation of block copolymer thin films directed by comb-coil architecture", **Myungeun Seo**, Seonhee Shin, Sejin Ku, Sangwoo Jin, Jin-Baek Kim, Moonhor Rhee and Sang Youl Kim\*, *J. Mater. Chem.* 20, 94–102 (2010).
7. "Lithographically patterned breath figure of photoresponsive small molecules: dual-patterned honeycomb lines from combination of bottom-up & top-down lithography", Jung Hak Kim, **Myungeun Seo** and Sang Youl Kim\*, *Adv. Mater.* 21, 4130–4133 (2009).
6. "Rapid and reversible gel-sol transition of self-assembled gel induced by photoisomerization of dendritic azobenzene", Jung Hak Kim, **Myungeun Seo** and Sang Youl Kim\*, *Langmuir* 25, 1761–1766 (2009).
5. "Utilization of evaporation during the crystallization process: self-templation of macroporous organic parallelogrammatic pipes", **Myungeun Seo**, Jung Hak Kim, Gon Seo, Chae-Ho Shin and Sang Youl Kim\*, *Chem. Eur. J.* 15, 612–622 (2009).
4. "Product selectivity and catalytic deactivation of MOR zeolites with different acid site densities in methanol-to-olefin (MTO) reactions", Ji Won Park, Sun Jung Kim, **Myungeun Seo**, Sang Youl Kim, Yoshihiro Sugi and Gon Seo\*, *Appl. Catal. A: Gen.* 349, 76–85 (2008).
3. "Polymeric nanoparticles via noncovalent cross-linking of linear chains", **Myungeun Seo**, Benjamin J. Beck, Jos M. J. Paulusse, Craig J. Hawker\* and Sang Youl Kim\*, *Macromolecules* 41, 6413–6418 (2008).
2. "Preparation of mesoporous materials with adjustable pore size using anionic and cationic surfactants", Ji Won Park, Dong Sin Jung, **Myung Eun Seo**, Sang Youl Kim, Won-Jin Moon, Chae-Ho Shin and Gon Seo\*, *Microporous Mesoporous Mater.* 112, 458–466 (2008).
1. "Molecular self-assembly of macroporous parallelogrammatic pipes", **Myungeun Seo**, Gon Seo and Sang Youl Kim\*, *Angew. Chem. Int. Ed.* 45, 6306–6310 (2006).

## PATENTS

5. "Method of preparing hierarchically porous polymers and hierarchically porous polymers prepared thereby", **Myungeun Seo**, Jongmin Park, KR Pat 10-2187683/
4. "Ion exchange separation membrane, electrochemical cell including same, flow cell and fuel cell, and

manufacturing method thereof”, **Myungeun Seo**, Choongseop Jeon, Joong Jin Han, and Sehee Jung, KR Pat 10-2092997.

3. “Block copolymer for ultrafiltration membrane and method of preparing the same”, **Myungeun Seo**, Jinhee Lee, and Sang Youl Kim, KR Pat 10-1709020.

2. “Methods for the preparation of coil-comb block copolymers and their nanostructures”, **Myungeun Seo** and Sang Youl Kim, US Pat 8518497 B2.

1. “Methods for the preparation of coil-comb block copolymers and their nanostructures”, **Myungeun Seo** and Sang Youl Kim, KR Pat 10-1101767.

## INVITED ARTICLES

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4. [Special] “Strategies for controlling pore size in microporous polymers”, Jeonghyeon Lee and Myungeun Seo, *Polymer Science and Technology* 31, 188-192 (2020).

3. [Review] “Fabrication of nanoporous polymer microcapsules by polymerization-induced microphase separation”, Jaehoon Oh and **Myungeun Seo\***, *Synchrotron Radiation Science and Technology* 25, 22-26 (2018).

2. [Book Chapter] “Chapter 3. Robust mesoporous polymers derived from cross-linked block polymer precursors”, **Myungeun Seo**, In *Submicron Porous Materials*; Paolo Bettotti Ed.; Springer (2017).

1. “[Review] Porous polymers derived from block polymer precursors”, Jaehoon Oh, Soobin Kim, Jongmin Park, and **Myungeun Seo\***, *Polymer Science and Technology* 26, 506-518 (2015).

## SELECTED INVITED PRESENTATIONS

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17. “Size-dependent transport in porous polymer membranes via polymerization-induced microphase separation: pushing the limit of domain size control”, **Myungeun Seo**, American Chemical Society 2019 Fall National Meeting & Exposition, August 25, San Diego, CA, USA (2019).

16. “Synthesis of porous polymers with tailored porous space”, **Myungeun Seo**, Invited Lecture in Institute Charles Gerhardt Montpellier, December 14, Montpellier, France (2018).

15. “Nanostructured polymeric materials by polymerization-induced microphase separation”, **Myungeun Seo**, 2nd International Conference of Molecular Engineering of Polymers (MEP-2018), September 22, Shanghai, China (2018) (invited as a “Young-Scientist Invited Lecturer”).

14. “Synthesis of hierarchically porous polymers via block polymer self-assembly”, **Myungeun Seo**, International Scientific Conference on “Chemistry for Sustainable Development” (CSD2018), September 10, Hanoi, Vietnam (2018).

13. “Length scale control in polymerization-induced microphase separation”, **Myungeun Seo**, 7th Synchrotron Radiation in Polymer Science, September 5, Gyeongju, Korea (2018).

12. “Nanostructured polymeric materials via polymerization-induced microphase separation towards separation and energy applications”, **Myungeun Seo**, 255th American Chemical Society National Meeting & Exposition, March 19, New Orleans, LA, USA (2018).

11. “Syntheses of star and bottlebrush polymers towards Janus nanoobjects”, **Myungeun Seo**, LG Chem Tech Fair 2017, December 7, Daejeon, Korea (2017).

10. “Polymerization-induced microphase separation in confined space”, **Myungeun Seo**, IUMRS-ICAM 2017, August 30, Kyoto, Japan (2017).

9. “Polymerization-induced nanostructuring”, **Myungeun Seo**, The 66th Society of Polymer Science

Japan Annual Meeting, May 30, Chiba, Japan (2017) (presented as an “Invited Lecturer of International Leading Young Scientist”).

8. “Controlled crosslinking copolymerization towards tailored porous polymers”, **Myungeun Seo**, IUPAC-PSK40, October 7, Jeju, Korea (2016).

7. “Manipulation of molecular self-assembly by stimuli-responsive conformational change”, **Myungeun Seo**, Max Planck Institute for Solid State Research Workshop: Atomic-scale manipulation of molecules on solid surfaces, July 28, Stuttgart, Germany (2016).

6. “Let’s Create Nanostructures with Polymer!”, **Myungeun Seo**, 2016 ScienceTouch on Friday by National Research Foundation of Korea, April 29, Daejeon, Korea (2016).

5. “Bicontinuous nanostructures by polymerization-induced microphase separation”, **Myungeun Seo**, Pacifichem 2015, December 15-20, Honolulu, HI, USA (2015).

4. “RAFT copolymerization towards crosslinked nanoporous polymers”, **Myungeun Seo**, International Symposium for Advanced Materials Research (ISAMR) 2015, August 16-20, Sun Moon Lake, Taiwan (2015).

3. “Hierarchically porous polymers from block polymer precursors”, **Myungeun Seo**, LG Chem 2015 Metallocene Symposium, February 12, Daejeon, Korea (2015).

2. “Nanoporous poly(ether sulfone) derived from a block polymer precursor”, Jinhee Lee and **Myungeun Seo**, 22th Japan Polyimide & Aromatic Polymer Conference, December 1, Tokyo, Japan (2014).

1. “From a senior who became a scientist: To juniors in future”, **Myungeun Seo**, Special Seminar for Candidates of Korea Science Academy Admission, Korea Science Academy Gwangju Science High School, June 19, Gwangju, Korea (2014).

## ACADEMIC ACTIVITY

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Editorial Advisory Board, *Macromolecules* (2019 –)

ACS S. Korea Chapter Treasurer (2018 – 2019)

Member, Polymer Society of Korea

Member, Korean Chemical Society

Member, American Chemical Society

## GRANTS

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### Individual Funding

Research Program for Overlooked Areas, National Research Foundation of Korea (2019 – 2023)

Korea – France Cooperative Development Program (STAR), National Research Foundation of Korea (2018 – 2020)

General Research Program, National Research Foundation of Korea (2018 – 2019)

Beginning Independent Researcher Program, National Research Foundation of Korea (2014 – 2017)

### Group Funding (Participating)

Research for Industrial Core Technologies, Ministry of Trade, Industry and Energy (2020 – 2024)

Science Research Center (SRC), National Research Foundation of Korea (2018 – 2025)



Samsung Research Funding for Future Technology (2019 – 2022, 2014 – 2018)

## **ACTIVITIES IN RELATION WITH INDUSTRIES**

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### **Industrial Research Funding**

LG MMA (2016 – 2019)

Samsung Electronics (2016 – 2018)

LG Chem (2014 – 2017)

### **Consulting**

Hyundai NGB (2020)

SK Innovation (2014)

### **Invited Lectures**

LG Chem, Samsung Electronics, Samsung Advanced Institute of Technology, Kumho Tyre, etc