

CURRICULUM VITAE

Pil Jin Yoo

Professor

School of Chemical Engineering

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EDUCATION

Doctor of Philosophy (March 2000 ~ February 2004)

School of Chemical Engineering, Seoul National University

Advisor: [Prof. Hong H. Lee](#)

Thesis: **Self-organized Buckling in Metal/Polymer Bilayer Thin Films**

Master of Science (March 1998 ~ February 2000)

School of Chemical Engineering, Seoul National University

Advisor: [Prof. Hong H. Lee](#)

Thesis: **Morphological Transition of Diblock-copolymer/Homopolymer Blends in Thin Films**

Bachelor of Science (March 1994 ~ February 1998)

School of Chemical Engineering, Seoul National University

PROFESSIONAL ACTIVITIES

2007. 3 – present

Professor

School of Chemical Engineering & SKKU Advanced Institute of Nanotechnology (SAINT), Sungkyunkwan University (SKKU), Korea

2021. 1 – 2021. 12

Visiting Professor ([Dr. Chong Min Koo](#) Group)

Materials Architecturing Research Center, KIST

2013. 1 – 2013. 12

Visiting Associate Professor ([Prof. Daeyeon Lee](#) Group)

Department of Chemical and Biomolecular Engineering,
University of Pennsylvania (UPENN), USA

2004. 9 – 2007. 2

Post-doctoral Associate ([Prof. Paula Hammond](#) Group)

Department of Chemical Engineering, Massachusetts Institute of Technology (MIT), Cambridge, MA

2004. 3 – 2004. 8

Post-doctoral researcher

AWARDS

SCEJ Award for Outstanding Asian Researcher and Engineer (2020)

Mid-Career Excellence Award: Korean Polymer Society (2019)

LG Yonam Professor (2013)

Young Scientist Award: Wiley-Polymer Society of Korea (2011)

Best Teaching Award: Sungkyunkwan University (2011, 2013)

Activities for Academic Societies

한국고분자학회: 평의원, 종신회원, 재무이사(2014-2017) 및 학술부위원장(2018)

한국화학공학회: 평의원, 종신회원, 국제이사(2018) 및 조직이사(2022)

한국공업화학회: 평의원, 종신회원, 국제이사(2018-2021) 및 총괄학술이사(2022)

한국연구재단 공학단 화학공학 전문위원(RB) (2020.11-2023.10)

성균관대학교 산학협력단 부단장 (2019-현재)

PUBLICATIONS (Selected): Current h-index = 47 & Total citation > 10,300 times

Published Journal Papers (Corresponding or First Author Papers)

1. D. I. Shin, S. S. Yoo, S. H. Park, G. H. Lee, W. K. Bae, S. J. Kwon*, **P. J. Yoo***, G. R. Yi*, "Percolated Plasmonic Superlattices of Nanospheres with 1-nm-level Gap as High-Index Metamaterials", ***Advanced Materials***, in press (2022)
2. J. Cho, M. Kim, H. Seok, S. S. Yoo, N. C. S. Selvam, **P. J. Yoo*** and T. Kim*, "Patchwork-Structured Heterointerface of 1T-WS₂/α-WO₃ with Sustained Hydrogen Spillover as a Highly Efficient Hydrogen Evolution Reaction Electrocatalyst", ***ACS Applied Materials & Interfaces***, 14, 24008-24019 (2022)
3. S. Xu, H. Li, J. Lee, N. C. S. Selvam, B. Kang, J. Y. Lee* and **P. J. Yoo***, "Re Nanoclusters Anchored on Nanosheet Supports: Formation of Re-O-Matrix Bonding and Evaluation as All-pH-Range Hydrogen Evolution Reaction (HER) Electrocatalysts", ***Journal of Energy Chemistry***, 69, 185-193 (2022)
4. S. S. Yoo, J.-W. Ho, D.-I. Shin, M. Kim, S. Hong, J. H. Lee, H. J. Jeong, M. S. Jeong, G.-R. Yi, S. J. Kwon* and **P. J. Yoo***, "MXene Layer-Blanketed Au Nanoparticle Assembly as an Ultrasensitive Substrate for Surface Enhanced Raman Scattering with Simultaneous Enhancement in Electromagnetic and Charge Transfer Effects", ***Journal of Materials Chemistry A***, 10, 2945-2956 (2022)
5. S. Hong, S. S. Yoo, G. H. Choi, J. H. Lee, Y.-W. Choi, M. Kim, E. Kim, S. J. Kwon, D. J. Kim, J. Park and **P. J. Yoo***, "Layer-by-Layer Assembled High-Performance Ultra-Thin Barrier Coating in Confined Microchannel Devices for Strongly Penetrant Organic Solvents", ***Composites Part B: Engineering***, 230, 109537 (2022)
6. N. C. S. Selvam, S. J. Kwak, G. H. Choi, M. J. Oh, H. Kim, W.-S. Yoon, W. B. Lee* and **P. J. Yoo***, "Unveiling the Impact of Fe-incorporation on Intrinsic Performance of Reconstructed Water Oxidation Electrocatalyst", ***ACS Energy Letters***, 6, 4345-4354 (2021).
7. J. H. Lee, J. S. Yeon, J. Kim, J. H. Park, S. S. Yoo, S. Hong, M. Kim, M. J. Park*, H. S. Park* and **P. J.**

- Yoo***, "Accelerated Li-Ion Transport through a Zwitterion-Anchored Separator for High-Performance Li-S Batteries", *Journal of Materials Chemistry A*, **9**, 25463-25473 (2021).
8. J. B. Lee, G. H. Choi and **P. J. Yoo***, "Oxidized-co-crumpled Multiscale Porous Architectures of MXene for High Performance Supercapacitors", *Journal of Alloys and Compounds*, **887**, 161304 (2021).
 9. S. M. Kang, M. Kim, J. B. Lee, S. Xu, N. C. S. Selvam and **P. J. Yoo***, "NiCoP Nanoclusters-Anchored Porous Ti₃C₂T_x Monolayer as High Performance Hydrogen Evolution Reaction Electrocatalysts", *Nanoscale*, **13**, 12854-12864 (2021).
 10. J. Y. Lee, M. J. Oh and **P. J. Yoo***, "Concentric/Bipolar Ordering of Liquid Crystalline Graphene Oxide Nanosheets Confined in Microfluidically Synthesized Spherical Droplets", *Journal of Materials Chemistry C*, **8**, 8947-8954 (2021).
 11. G. H. Choi, M. G. Nam, S. J. Kwak, S. H. Kim, H. Chang, C.-S. Shin, W. B. Lee and **P. J. Yoo***, "Modularly Aromatic-Knit Graphitizable Phenolic Network as a Tailored Platform for Electrochemical Applications", *Energy & Environmental Science*, **14**, 3203-3215 (2021).
 12. T. Park, G. H. Choi, D. Lee*, **P. J. Yoo***, "Metal-Phenolic Network-Coated Hollow Fiber Catalytic Membranes via Solvent Transfer Induced Phase Separation (STRIPS) for Suzuki Coupling Reaction", *Journal of Membrane Science*, **634**, 119386 (2021).
 13. M. Kim, H. Seok, N. C. S. Selvam, J. Cho, G. H. Choi, M. G. Nam, S. Kang, T. Kim*, **P. J. Yoo***, "Kirkendall effect induced bifunctional hybrid electrocatalyst (Co₉S₈@MoS₂/N-doped hollow carbon) for high performance overall water splitting", *Journal of Power Sources*, **493**, 229688 (2021).
 14. J. H. Lee, M. J. Oh, **P. J. Yoo***, "Broad Tunability in Mechanical Properties of Closed Cellular Foams Using Micro- Bubble Assembly of Graphene/Silica Nanocomposites", *Materials & Design*, **202**, 109558 (2021).
 15. M. J. Oh and **P. J. Yoo***, "Graphene-Based Ultralight Compartmentalized Isotropic Foams with an Extremely Low Thermal Conductivity of 5.75 mW m⁻¹ K⁻¹", *Advanced Functional Materials*, **31**, 2007392 (2021).
 16. N. C. S. Selvam, L. Du, B. Y. Xia, **P. J. Yoo*** and B. You*, "Reconstructed Water Oxidation Electrocatalysts: The Impact of Surface Dynamics on Intrinsic Activities", *Advanced Functional Materials*, **30**, 2008190 (2020).
 17. Y. Yan, S. Xu, H. Li, N. C. S. Selvam, J. Y. Lee, H. Lee* and **P. J. Yoo***, "Perpendicularly Anchored ReSe₂ Nanoflakes on Reduced Graphene Oxide Support for Highly Efficient Hydrogen Evolution Reactions", *Chemical Engineering Journal*, **405**, 126728 (2021).
 18. S. Hong, S. S. Yoo, J. Y. Lee* and **P. J. Yoo***, "Sonochemically Activated Synthesis of Gradationally Complexed Ag/TEMPO-Oxidized Cellulose for Multifunctional Textiles with High Electrical Conductivity, and Efficient EMI Shielding", *Journal of Materials Chemistry C*, **8**, 13990 (2020).
 19. G. D. Min, M. G. Nam, D. Kim, M. J. Oh, J. H. Moon, W.-J. Kim, J. Park and **P. J. Yoo***, "Controlled High-Capacity Storage of Lithium-Ions Using Void-Incorporated 3D MXene Architectures", *Advanced Materials Interfaces*, **7**, 2000734 (2020).
 20. H. Na, G. H. Choi, T. Eom, J. Bang and **P. J. Yoo***, "Click-Functionalized Inverse-Opal Structured Membranes for Organocatalytic Reactions", *Separation and Purification Technology*, **240**, 116621 (2020).
 21. S. S. Yoo, S. Y. Kim, K. S. Kim, S. Hong, M. J. Oh, M. G. Nam, W.-J. Kim, J. Park, C.-H. Chung, W.-S. Choe* and **P. J. Yoo***, "Controlling Inter-Sheet-Distance in Reduced Graphene Oxide Electrodes for

- Highly Sensitive Electrochemical Impedimetric Sensing of Myoglobin", *Sensors and Actuators B*, **305**, 127477 (2019).
22. N. C. S. Selvam, J. Lee, G. H. Choi, M. J. Oh, S. Xu, B. Lim and **P. J. Yoo***, "MXene Supported CoxAy (A=OH, P, Se) Electrocatalysts for Overall Water Splitting: Unveiling the Role of Anions on Intrinsic Activity and Stability", *Journal of Materials Chemistry A*, **7**, 27383-27393 (2019).
 23. H. Kim, H. Kim, S. Muhammad, J. H. Um, M. S. A. Sher Shah, **P. J. Yoo***, W.-S. Yoon*, "Catalytic effect of reduced graphene oxide on facilitating reversible conversion reaction in SnO₂ for next-generation Li rechargeable batteries", *Journal of Power Sources*, **446**, 227321 (2019).
 24. J. H. Moon, M. J. Oh, M. G. Nam, J. H. Lee, G. D. Min, J. Park, W. -J. Kim and **P. J. Yoo***, "Carbonization/Oxidation-Mediated Synthesis of MOF-Derived Hollow Nanocages of ZnO/N-doped Carbon Interwoven by Carbon Nanotubes for Lithium-Ion Battery Anodes", *Dalton Transactions*, **48**, 11941–11950 (2019).
 25. S. H. Hong, S. S. Yoo and **P. J. Yoo***, "Binder-Free Heat Dissipation Films Assembled with Reduced Graphene Oxide and Alumina Nanoparticles for Simultaneously High In-Plane and Cross-Plane Thermal Conductivities", *Journal of Materials Chemistry C*, **7**, 9380-9388 (2019).
 26. T. J. Kim, J. H. Yoon, G. -R. Yi* and **P. J. Yoo***, "Si Nanoparticle Clusters in Hollow Carbon Capsules (SNC@C) as Lithium Battery Anodes: Toward High Initial Coulombic Efficiency", *Nanoscale*, **11**, 13650-13658 (2019).
 27. D. K. Rhee and **P. J. Yoo***, "Interconnected Assembly of ZrO₂@SiO₂ Nanoparticles with Dimensional Selectivity and Refractive Index Tunability", *Journal of Materials Chemistry C*, **7**, 8176-8184 (2019).
 28. J. H. Lee, G. H. Choi, K. J. Park, D. Kim, S. Lee, H. Yi and **P. J. Yoo***, "Dual-Colour Generation from Layered Colloidal Photonic Crystals Harnessing "Core Hatching" in Double Emulsions", *Journal of Materials Chemistry C*, **7**, 6924-6931(2019).
 29. D. H. Ho, H. M. Jun, S. J. Yeo, P. Hong, M. J. Oh, B. M. Weon, W. B. Lee, S. J. Kwon, **P. J. Yoo***, and J. H. Cho*, "Ultra-Lightweight Strain-Responsive 3D Graphene Network", *J. Phys. Chem. C*, **123**, 9884-9893 (2019).
 30. H. G. Nam, M. G. Nam, **P. J. Yoo***, J. H. Kim*, "Hydrogen bonding-based strongly adhesive coacervate hydrogels synthesized using poly(N-vinylpyrrolidone) and tannic acid", *Soft Matter*, **15**, 785-791 (2019).
 31. S. J. Yeo, M. J. Oh and **P. J. Yoo***, "Structurally Controlled Cellular Architectures for High Performance Ultra-Lightweight Materials", *Advanced Materials*, **30**, 1803670 (2018).
 32. Md. S. A. Sher Shah, J. Lee, A. Rauf, J. H. Park, B. Lim* and **P. J. Yoo***, "Electrostatically regulated ternary-doped carbon foams with exposed active sites as metal-free oxygen reduction electrocatalysts", *Nanoscale*, **10**, 19498–19508 (2018).
 33. S. J. Yeo, M. J. Oh, H. M. Jun, M. Lee, J. G. Bae, Y. Kim, K. J. Park, S. Lee, D. Lee, B. M. Weon, W. B. Lee, S. J. Kwon* and **P. J. Yoo***, "Plesiohedral Cellular Network of Graphene Bubbles for Ultralight, Strong, and Superelastic Materials", *Advanced Materials*, **30**, 1802997 (2018).
 34. M. J. Noh, M. J. Oh, J. H. Choi, J. C. Yu, W. -J. Kim, J. Park, Y. -W. Chang and **P. J. Yoo***, "Layer-by-layer assembled multilayers of charged polyurethane and graphene oxide platelets for flexible and stretchable gas barrier films", *Soft Matter*, **14**, 6708-6715 (2018).
 35. Y. J. Jeong, K. J. Park, K. Kim, S. Lee* and **P. J. Yoo***, "Uniaxial Alignment of ZnO Nanowires via Light-Induced Directional Migration of Azopolymeric Microspheres", *Polymer*, **138**, 180-187 (2018).

36. A. Rauf, M. Ming, S. Kim, M. S. A. Sher Shah, C. -H. Chung, J. H. Park* and **P. J. Yoo***, "Mediator and Co-Catalysts- Free Direct Z-Scheme Composites of Bi₂WO₆-Cu₃P for Solar-Water Splitting", **Nanoscale**, 10, 3026-3036 (2018).
37. M. S. Salman, A. R. Park, M. J. Cha, Y. Choi, S. K. Jang, L. Tan*, **P. J. Yoo*** and W.-C. Choe*, "Lysozyme-templated Meso-macroporous Hollow TiO₂ for Lithium-ion Battery Anode", **ACS Applied Nano Materials**, 1, 698-710 (2017).
38. S. S. Yoo, G. H. Choi, W. Lee, J. Park, G.-R. Yi, D. Y. Ryu and **P. J. Yoo***, "Cumulative energy analysis of thermally-induced surface wrinkling of heterogeneously multilayered thin films", **Soft Matter**, 14, 704-710 (2018).
39. S. E. Song, G. H. Choi, G. -R. Yi and **P. J. Yoo***, "Competitive concurrence of surface wrinkling and dewetting of liquid crystalline polymer films on non-wettable substrates", **Soft Matter**, 13, 7753-7759 (2017).
40. K. S. Kim, J. U. Kim, S. Lee, J. S. Lee, Y. J. Jo, B. Park, H. Tak, **P. J. Yoo*** and T. I. Kim*, "High-Precision Temperature-Controllable Metal-coated Polymeric Molds for Programmable, Hierarchical Patterning", **Advanced Functional Materials**, 27, 1702993 (2017).
41. S. J. Yeo, G. H. Choi and **P. J. Yoo***, "Multiscale-Architected Functional Membranes Utilizing Inverse Opal Structures", **Journal of Materials Chemistry A**, 5, 17111-17134 (2017).
42. A. R. Park, M. G. Nam, A. -Y. Kim, K. S. Kim, M. S. A. Sher Shah, J. Y. Lee, W. -J. Kim, J. K. Lee and **P. J. Yoo***, "Si/Co-CoSi₂/reduced graphene oxide ternary nanocomposite anodes for Li-Ion batteries with enhanced capacity and cycling stability", **Journal of Alloys and Compounds**, 724, 1134-1142 (2017).
43. A. Rauf, M. S. A. Sher Shah, J. Y. Lee, C. -H. Chung, J. W. Bae and **P. J. Yoo***, "Non-stoichiometric SnS microspheres with highly enhanced photoreduction efficiency for Cr(VI) ions", **RSC Advances**, 7, 30533-30541 (2017).
44. M. S. A. Sher Shah, J. Lee, A. R. Park, Y. Choi, W. -J. Kim, J. Park, C. -H. Chung, J. Kim, B. Lim and **P. J. Yoo***, "Ultra-fine SnO₂ nanoparticles doubly embedded in amorphous carbon and reduced graphene oxide (rGO) for superior lithium storage", **Electrochimica Acta**, 224, 201-210 (2017).
45. M. S. A. Sher Shah, A. R. Park, Y. Choi, J. Park, J. Kim, W. -J. Kim and **P. J. Yoo***, "Highly interdigitated and porous architected ternary composite of SnS₂, g-C₃N₄, and reduced graphene oxide (rGO) as high performance lithium ion battery anodes", **RSC Advances**, 7, 3125-3135 (2017).
46. K. S. Kim, S. R. Lim, S. -E. Kim, J. Y. Lee, C. -H. Chung, W. -S. Choe* and **P. J. Yoo***, "Highly Sensitive and Selective Electrochemical Cortisol Sensor Using Bifunctional Protein Interlayer-Modified Graphene Electrodes", **Sensors and Actuators B: Chemical**, 242, 1121-1128 (2017).
47. S. M. Park, Y. S. Kim, H. J. Ahn, J. H. Kim, **P. J. Yoo*** and D. Y. Ryu*, "Giant Gyroid and Templates from High-Molecular-Weight Block Copolymer Self-assembly", **Scientific Reports**, 6, 36326 (2016).
48. M. J. Oh, Y. H. Kim, G. H. Choi, A. R. Park, Y. M. Lee, B. Park, C. H. Pang, T. Kim* and **P. J. Yoo***, "Percolation-Controlled Metal/Polyelectrolyte Complexed Films for All-Solution-Processable Electrical Conductors", **Advanced Functional Materials**, 26, 8726-8734 (2016).
49. S. J. Yeo, K. J. Park, K. Guo, **P. J. Yoo*** and S. Lee*, "Microfluidic generation of monodisperse and photo-reconfigurable microspheres for floral iridescence-inspired structural colorization", **Advanced Materials**, 28, 5268 (2016).
50. G. H. Choi, D. K. Rhee, A. R. Park, M. J. Oh, S. H. Hong, J. J. Richardson, J. Cuo, F. Caruso, **P. J. Yoo***, "Ag Nanoparticle/Polydopamine-Coated Inverse Opals as Highly Efficient Catalytic Membranes",

ACS Applied Materials & Interfaces, 8, 3250-3257 (2016).

51. A. Rauf, M. S. A. Sher Shah, G. H. Choi, U. S. Humayoun, D. H. Yoon, J. W. Bae, J. Park, W. J. Kim, **P. J. Yoo***, "Facile Synthesis of Hierarchically Structured Bi₂S₃/Bi₂WO₆ Photocatalysts for Highly Efficient Reduction of Cr(VI)", **ACS Sustainable Chemistry & Engineering**, 3, 2847-2855 (2015).
52. A. R. Park, D. Y. Son, J. S. Kim, J. Y. Lee, N. G. Park, J. H. Park, J. K. Lee, **P. J. Yoo***, "Si/TiO₂/Reduced Graphene Oxide Nanocomposite Anodes for Lithium-Ion Batteries with Highly Enhanced Cyclic Stability", **ACS Applied Materials & Interfaces**, 7, 18483-18490 (2015).
53. K. S. Kim, J. R. Jang, W. S. Choe*, **P. J. Yoo***, "Electrochemical Detection of Bisphenol A with High Sensitivity and Selectivity Using Recombinant Protein-Immobilized Graphene Electrodes", **Biosensors & Bioelectronics**, 71, 214-221 (2015).
54. Y. M. Lee, W. J. Kim, Y. H. Kim, J. K. Kim, J. R. Jang, W. S. Choe, J. H. Park*, **P. J. Yoo***, "Incorporation of a Metal Oxide Interlayer Using Virus-Templated Assembly and Synthesis into Graphene Electrode-Based Organic Photovoltaics ", **ChemSusChem**, 8, 2385-2391 (2015).
55. M. S. A. Sher Shah, Y. H. Kim, A. R. Park, A. Rauf, **P. J. Yoo***, "Self-Supported Ag/AgCl Nanoparticles Incorporated Polymeric Multilayer Films for Reusable Electrophotocatalysts", **Materials Express**, 5, 401-409 (2015).
56. M. S. A. Sher Shah, S. Muhammad, J. H. Park, W. S. Yoon*, **P. J. Yoo***, "Incorporation of PEDOT:PSS into SnO₂/Reduced Graphene Oxide Nanocomposite Anodes for Lithium-Ion Battery to achieve Ultra-High Capacity and Cyclic Stability ", **RSC Advances**, 5, 13964-13971 (2015).
57. S. J. Yeo, F. Tu, S. H. Kim, G. R. Yi, **P. J. Yoo***, D. Y. Lee*, "Angle- and Strain-Independent Flexible Structural Colour Films Incorporating Non-spherical Colloidal Photonic Crystals", **Soft Matter**, 11, 1582 (2015).
58. M. S. A. Sher Shah, W. J. Park, D. K. Rhee, I. H. Jang, N. G. Park, J. Y. Lee, **P. J. Yoo***, "Highly Efficient and Recyclable Nanocomplexed Photocatalysts of AgBr/N-Doped and Amine-Functionalized Reduced Graphene Oxide", **ACS Applied Materials & Interfaces**, 6, 20819 (2014).
59. Y. H. Kim, H. kang, S. Park, A. R. Park, Y. M. Lee, D. K. Rhee, S. Han, H. Chang, D. Y. Ryu*, **P. J. Yoo*** "Multiscale Porous Interconnected Nanocolander Network with Tunable Transport Properties", **Advanced Materials**, 26, 7998 (2014).
60. D.K. Rhee, B. Jung, Y.H. Kim, S.J. Yeo, S.-J. Choi, A. Rauf, Su. Han, G.-R. Yi, D. Lee, **P. J. Yoo*** "Particle-Nested Inverse Opal Structures as Hierarchically Structured Large-Scale Membranes with Tunable Separation Properties", **ACS Applied Materials & Interfaces**, 6, 9950 (2014).
61. Y. M. Lee, B. Jung, Y. H. Kim, A R. Park, S. Han, W.-S. Choe, and **P. J. Yoo*** "Nanomesh-Structured Ultrathin Membranes Harnessing Unidirectional Alignment of Viruses on Graphene Oxide Film", **Advanced Materials**, 26, 3899 (2014).
62. A. R. Park, J. S. Kim, K. S. Kim, K. Zhang, J. Park, J. H. Park, J. K. Lee, **P. J. Yoo*** "Si-Mn/Reduced Graphene Oxide Nanocomposite Anodes with Enhanced Capacity and Stability for Lithium-Ion Batteries", **ACS Applied Materials & Interfaces**, 6, 1702 (2014).
63. J. H. Park, C. Hudaya, A.-Y. Kim, D. K. Rhee, S. J. Yeo, W. Choi, **P. J. Yoo*** and J. K. Lee* "Al-C Hybrid Nanoclustered Anodes for Lithium Ion Batteries with High Electrical Capacity and Cyclic Stability", **Chemical Communications**, 50, 2837 (2014).
64. M. S. A. Sher Shah, K. Zhang, A R. Park, K. S. Kim, N. G. Park, J. H. Park, **P. J. Yoo*** "Single-Step Solvothermal Synthesis of Mesoporous Ag/TiO₂/Reduced Graphene Oxide Ternary Composites with

Enhanced Photocatalytic Activity", **Nanoscale**, 5, 5093 (2013).

65. K. S. Kim, Y. M. Um, J. R. Jang, W. S. Choe*, **P. J. Yoo*** "Highly Sensitive Reduced Graphene Oxide Impedance Sensor Harnessing p-Stacking Interaction Mediated Direct Deposition of Protein Probes", **ACS Applied Materials & Interfaces**, 5, 3591 (2013).
66. S. J. Yeo, S. H. Shin, K. T. Nam, **P. J. Yoo*** "Multidimensional Assembly of S-Layer Proteins on Mobility-Controlled Polyelectrolyte Multilayers", **ACS Macro Letters**, 1, 1254 (2012).
67. M. S. A. Sher Shah, A R. Park, K. Zhang, J. H. Park, and **P. J. Yoo***, "Green Synthesis of Biphasic TiO₂-Reduced Graphene Oxide Nanocomposites with Highly Enhanced Photocatalytic Activity", **ACS Applied Materials & Interfaces**, 4, 3893 (2012).
68. S. J. Yeo, H. Kang, Y. H. Kim, S. Han, **P. J. Yoo*** "Layer-by-Layer Assembly of Polyelectrolyte Multilayers in Three- Dimensional Inverse Opal Structured Templates", **ACS Applied Materials & Interfaces**, 4, 2107 (2012).
69. J. K. Kim, H. S. Park, S. Ham, K. J. Lee*, **P. J. Yoo***, J. H. Park*, "Ultrathin Nanoclay Films with Tunable Thickness as Barrier Layers in Organic Light Emitting Devices", **Journal of Materials Chemistry**, 22, 7718-7723 (2012).
70. Y. H. Kim, Y. M. Lee, J. Y. Lee, M. J. Ko, and **P. J. Yoo***, "Hierarchical Nanoflake Surface Driven by Spontaneous Wrinkling of Polyelectrolyte/Metal Complexed Films" **ACS Nano**, 6(2), 1082-1093 (2012).
71. J. H. Lee, Y. M. Lee, Y. H. Kim, J. Y. Lee, S. -J. Choi, and **P. J. Yoo***, "Liquid-Liquid Interfacial Nanomolding" **Small**, 7(18), 2587-2592 (2011).
72. **P. J. Yoo***, "Invited Paper: Fabrication of Complexly Patterned Wavy Structures Using Self-Organized Anisotropic Wrinkling", **Electronic Materials Letters**, 7, 17 (2011).
73. Y. H. Ko, Y. H. Kim, J. Park, K. T. Nam, J. H. Park and **P. J. Yoo***, "Electric Field-Assisted Layer-by-Layer Assembly of Weakly Charged Polyelectrolyte Multilayers", **Macromolecules**, 44(8), 2866 (2011).
74. Y. M. Lee, Y. H. Kim, J. H. Lee, J. H. Park, N.-G. Park, W.-S. Choe, M. J. Ko, and **P. J. Yoo***, "Highly Interconnected Porous Electrode for Dye-Sensitized Solar Cells Using Viruses as a Sacrificial Template" **Advanced Functional Materials**, 21(6), 1160 (2011).
75. J. S. Park, S. M. Cho, W. J. Kim, J. Park, and **P. J. Yoo***, "Fabrication of Graphene Thin Films Based on Layer-by-Layer Self-Assembly of Functionalized Graphene Nanosheets" **ACS Applied Materials & Interfaces**, 3(2), 360 (2011).
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Patents (Selected):

1. "Method for forming a micro-pattern on a substrate by using capillary force" by "Hong Lee, Kab Suh, Youn Kim, **Pil Jin Yoo**", 2003/4/3, US Patent Application number 09967081.
2. "Resin composition for mold used in forming micropattern, and method for fabricating organic mold therefrom" by "Tae Wan Kim, **Pil Jin Yoo**", 2010/2/2, US Patent number 7655307.
3. "Self-assembly of macromolecules on multilayered polymer surfaces" by "**Pil J. Yoo**, Ki Tae Nam, Jifa Qi, Soo-Kwan Lee, Juhyun Park, Angela M Belcher, Paula T Hammond", 2016/3/1, US Patent number 9274108.
4. "Hybrid porous structured material, membrane including the same, and method of preparing hybrid porous structure material" by "Hyo Kang, Sung Soo Han, **Pil Jin Yoo**, Du Yeol Ryu, Young Hun Kim, Seon Ju Yeo", 2014/4/15, US Patent number 8695811.
5. "Hybrid porous structure, method of preparing hybrid porous structure, separation membrane

including hybrid porous structure, and water treatment device including membrane” by “Hyo Kang,
Pil Jin Yoo, Sung Soo Han, Young Hun Kim, Seon Ju Yeo”, 2016/1/12, US Patent number 9233518.