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PMSE Division of ACS
5200 Bayway Drive
Baytown, Texas 77520

Phone: (281) 834-0222
Fax: (281) 834-2395

weiqing.weng@exxonmobil.com

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PMSE

DIVISION OF POLYMERIC MATERIALS SCIENCE AND ENGINEERING – PREPRINT PRESENTATIONS ONLY

M. Becker, Q. Lin, A. Nelson, and C. Stafford, *Program Chairs*

SUNDAY MORNING

Section B: **Eastman Chemical Student Award in Applied Polymer Science**

Financially supported by Eastman Chemical Company
J. Gilmer, *Organizer, Presiding*

Hilton San Francisco Union Square
Golden Gate 4

8:35 **7.** Successive mechanochemical activation and small molecule release in an elastomeric material. **M. B. Larsen**, A. J. Boydston 1

9:05 **8.** Block copolymers for rational design of nitrogen-enriched nanocarbons suitable for sustainable energy applications. **M. Zhong**, E. Kim, H. Nulwala, A. Star, T. Kowalewski, K. Matyjaszewski 3

9:35 **9.** Scalable anti-fouling reverse osmosis membranes. **B. T. McVerry**, M. C. Wong, C. Marambio-Jones, K. L. Marsh, E. M. Hoek, R. B. Kaner 6

10:20 **10.** Polymer-derived electrospun turbostratic carbon nanofibers with controlled electrochemical activities for sensing and energy applications. **X. Mao**, G. C. Rutledge, T. Hatton 8

10:50 **11.** Cellulose nanocrystal reinforced bioactive poly(ε-caprolactone) nanocomposite for bone tissue engineering. **J. Hong**, M. Roman 11

11:20 **12.** Imidazole-containing ABA triblock copolymers containing a synergy of ether and imidazolium sites. **C. Jangu**, J. H. Wang, D. Wang, J. R. Heflin, R. H. Colby, T. E. Long 13

Section F: **General Papers/New Concepts in Polymeric Materials**
Polymeric Biomaterials and Applications

Q. Lin, *Organizer*
A. Shastri, X. Jia, *Presiding*

Hilton San Francisco Union Square
Continental Parlor 7/8

10:30 **40.** Chemo-mechanically modulated biomolecule catch and release with aptamer-functionalized adaptively reconfigurable polymeric systems. **A. Shastri**, X. He, O. Kuksenok, L. McGregor, Y. Vasquez, A. Balazs, J. Aizenberg 16

SUNDAY AFTERNOON

Section B: **Porous Polymers**
Microporous

Financially supported by Polymer Science Journal, Elsevier

D. Schiraldi, M. Hillmyer, M. Silverstein, *Organizers*
N. McKeown, *Organizer, Presiding*
P. Budd, *Presiding*

Hilton San Francisco Union Square
Golden Gate 4

2:55 **54.** Porous aromatic frameworks (PAFs) functionalized with metal-Schiff base complexes for catalytic oxidation. **S. J. Garibay**, O. K. Farha, J. T. Hupp, S. T. Nguyen 18

MONDAY MORNING

Section D: **Self-Healing and Shape Memory Materials**

K. Cavicchi, *Organizer*
R. A. Weiss, *Organizer, Presiding*
M. W. Urban, T. Xie, *Presiding*

Hilton San Francisco Union Square
Continental Parlor 9

8:30 **111.** Polymer networks capable of reversible shape-memory-effects. M. Behl, K. Kratz, U. Nöchel, T. Sauter, **A. Lendlein** 19

10:50 **116.** Shape memory polyimides based on two novel trifunctionalized phosphine-oxide crosslinking agents. **D. H. Wang**, L. Tan 20

Section F: **Advanced Materials Synthesis and Assembly Toward Technology Challenges**

Financially supported by IBM Almaden Research Center
A. Nelson, D. Coady, J. Hedrick, *Organizers*
C. Yan, *Presiding*

Hilton San Francisco Union Square
Continental Parlor 3

10:45 **130.** Engineering polymer self-assembly via sidechain modification in phenylene vinylenes. **K. N. Plunkett**, X. Zhu, S. E. Ingle, D. A. Vanden Bout 22

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Section A: **Stimuli-Responsive Supramolecular, Macromolecular and Nanostructured Systems and Biopolymer-Driven Organization of Nanostructures**

Financially supported by Army Research Office, Tulane University, University of Miami, and The Royal Society of Chemistry/Chemical Communications (ChemComm)

N. Gianneschi, J. Jayawickramarajah, A. Braunschweig, *Organizers*
C. Guzman, *Presiding*

Hilton San Francisco Union Square
Golden Gate 2

9:05 **178.** Stable and pH-responsive polymersomes decorated with folate-antennas for targeting tumor cells. **B. Voit**, M. Yassin, D. Appelhans, R. Wiedemuth, H. Temme 23

10:05 **181.** Thermo-responsive diblock copolymer worm gels with tunable critical gelation temperature. **V. J. Cunningham**, L. P. Ratcliffe, A. Blanazs, N. J. Warren, O. O. Mykhaylyk, S. P. Armes 24

11:40 **185.** Salt, shake, fuse: Giant hybrid polymer/lipid vesicles via mechanically-activated fusion. **I. M. Henderson**, W. F. Paxton 26

Section B: **Porous Polymers**
Microporous

Financially supported by Polymer Science Journal, Elsevier

D. Schiraldi, M. Silverstein, M. Hillmyer, N. McKeown, *Organizers*
C. Daniel, Y. Lee, *Presiding*

Hilton San Francisco Union Square
Golden Gate 4

9:30 **188.** Rational design and synthesis of porous polymers: Toward high surface area. **W. Lu**, **H. Zhou** 27

Section D: **Self-Healing and Shape Memory Materials**

K. Cavicchi, R. A. Weiss, *Organizers*
J. J. Benkoski, P. Mather, *Presiding*

Hilton San Francisco Union Square
Continental Parlor 9

9:30 **202.** Shape memory natural rubber (SMNR). D. Quitmann, R. Hoeher, F. Katzenberg, **J. C. Tiller** 28

TUESDAY AFTERNOON

Section B: **Porous Polymers**
Macroporous

Financially supported by Polymer Science Journal, Elsevier

D. Schiraldi, M. Hillmyer, N. McKeown, M. Silverstein, *Organizers*
D. Grande, F. Du Prez, *Presiding*

Hilton San Francisco Union Square
Golden Gate 4

3:15 **231.** Functional doubly porous materials based on polymer networks. **D. Grande**, B. Le Droumaguet, H. Ly, B. Carbonnier, V. Monchiet, T. Lemaire, S. Naili 30

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Ionic Liquids and Complex Fluids Based Functional Fluids

Financially supported by ExxonMobil Research & Engineering Company

A. Patil, *Organizer*
S. Luo, *Organizer, Presiding*

Hilton San Francisco Union Square
Golden Gate 5

3:15 **253.** Interpolyelectrolyte complexes based on miktoarm stars. **F. A. Plamper**, A. P. Gelissen, D. V. Pergushov, O. V. Borisov, J. Timper, A. Wolf, A. B. Zezin, W. Richtering, H. Tenhu, U. Simon, J. Mayer 32

TUESDAY EVENING

Section A: **Joint PMSE/POLY Poster Session**

Q. Lin, *Organizer, Presiding*

Moscone Center, West Bldg.
Exhibit Hall

6:00 - 8:00

274. Grafting of DMAEMA onto cotton gauze induced by gamma-rays for biomedical purposes. M. A. Luna-Straffon, G. Brackman, T. Tom Coenye, C. Alvarez-Lorenzo, A. Concheiro, **E. Bucio** 34

276. Synthesis of group VA polyethers from the reaction of organometallic group VA dihalides with isomannide (D-mannitol). **C. E. Carraher, Jr.**, S. Siddiqui, M. R. Roner 37

277. Fragmentation MALDI TOF MS of polyesters formed from the reaction of the salts of chelidonic acid and thiodiglycolic acid with Group VA dihalides. **C. E. Carraher, Jr.**, M. Ayoub, N. Pham, M. R. Roner 40

278. Synthesis of organotin polyesters from reaction of the salt of D-camphoric acid and organotin dihalides. **C. E. Carraher, Jr.**, A. G. Campbell, M. R. Roner 44

279. Synthesis of organotin polyether esters from reaction of the salt of alpha-cyano-4-hydroxycinnamic acid and organotin dihalides. **C. E. Carraher, Jr.**, V. Suresh, M. R. Roner 47

280. Synthesis of organotin polyethers derived from the anticoagulant dicumarol. **C. E. Carraher, Jr.**, N. Sookedo, J. D. Johnson, M. R. Roner 50

281. Fragmentation MALDI TOF MS of polyesters formed from reaction of the salts of chelidonic acid and thiodiglycolic acid with group IVB metallocene dichlorides. **C. E. Carraher, Jr.**, M. Ayoub, N. Pham, M. R. Roner 53

290. Ink-jet printing based high-throughput layer-by-layer assembly for biomedical applications. **M. Choi**, J. Hong 58

303. Molecular structure parameters of sodium lignosulfonate single molecules. Y. Deng, **Y. Guo**, X. Qiu 60

WEDNESDAY MORNING

Section B: **Porous Polymers**
PolyHIPEs

Financially supported by Polymer Science Journal, Elsevier

D. Schiraldi, M. Silverstein, M. Hillmyer, N. McKeown, *Organizers*
A. Bismarck, P. Krajnc, *Presiding*

Hilton San Francisco Union Square
Golden Gate 4

10:55 **516.** Nanoparticle stabilized HIPEs derived macroporous metaloxides. **S. Kovacic**, A. Anzlovar, G. Ferk, C. Slugovc 108

Section C: **Functional Supramolecular Polymers**

Financially supported by ACS Macro Letters, Macromolecules, and Biomacromolecules

S. Rowan, H. Cui, *Organizers, Presiding*

Hilton San Francisco Union Square
Continental Ballroom 5

11:15 **528.** Thermogelling polymers and their biomedical applications. **X. Loh** 109

Section E: **General Papers/New Concepts in Polymeric Materials**
Polymers for Electronics and Clean Energy

Q. Lin, *Organizer*
C. Yan, D. Devaux, *Presiding*

Hilton San Francisco Union Square
Golden Gate 5

11:10 **543.** Synthesis of conductive block copolymer binders for the silicon anode in lithium ion battery. **Y. Chen**, G. Ai, S. Park, V. S. Battaglia, G. Liu 110

WEDNESDAY AFTERNOON

Section A: **Stimuli-Responsive Supramolecular, Macromolecular and Nanostructured Systems and Biopolymer-Driven Organization of Nanostructures**

Financially supported by Army Research Office, Tulane University, University of Miami, and The Royal Society of Chemistry/Chemical Communications (ChemComm)

J. Jayawickramarajah, A. Braunschweig, N. Gianneschi, *Organizers*
C. LeGuyader, *Presiding*

Hilton San Francisco Union Square
Golden Gate 2

2:35 **557.** How to prepare micellar nanoparticles with diverse morphologies via ROMP. **S. A. Barnhill**, N. C. Gianneschi 111

Section C: **Functional Supramolecular Polymers**

Financially supported by ACS Macro Letters, Macromolecules, and Biomacromolecules

S. Rowan, H. Cui, *Organizers, Presiding*
M. Zhang, *Presiding*

Hilton San Francisco Union Square
Continental Ballroom 5

2:25 **575.** Branched hierachical nanocrystals fabricated by in situ nanoparticlization of fully conjugated polythiophene diblock copolymers. **I. Lee**, P. Amaladass, K. Yoon, S. Shin, Y. Kim, I. Kim, E. Lee, T. Choi 112

THURSDAY MORNING

Section D: **General Papers/New Concepts in Polymeric Materials**
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Q. Lin, *Organizer*
B. Donovan, M. Klapper, *Presiding*

Hilton San Francisco Union Square
Continental Parlor 2

8:50 **634.** Synthesis-driven approach to functional amphiphilic co-networks. **C. Nardi Tironi** 113

9:50 **637.** Redox solute doped polypyrrole for high-charge capacity polymer electrodes. **M. R. Arcila-Velez**, M. E. Roberts 114

Section E: **General Papers/New Concepts in Polymeric Materials**
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Q. Lin, *Organizer*
A. N. Bruce, S. Luo, *Presiding*

Hilton San Francisco Union Square
Continental Ballroom 6

10:50 **648.** Volume shrinkage characteristics for vinyl ester resin-montmorillonite nanocomposites. **Y. Huang**, I. Liu, Y. Yu, R. Rau, H. Oktavia, Y. Tassia 116

Section F: **General Papers/New Concepts in Polymeric Materials**
Physics, Processing and Properties of Polymeric Materials

Q. Lin, *Organizer*
S. Im, *Presiding*

Hilton San Francisco Union Square
Continental Parlor 3

8:50 **652.** Non-bell distribution of crystal growth rates for poly(ethylene naphthalate). J. Wang, **M. Chen** 121

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10:10 **655.** Method to incorporate Janus property onto arbitrary porous substrates. **Y. Yoo**, J. You, M. Oh, S. Im 124

11:10 **658.** Reinforcement of epoxy polymers with micro/nanosized and mesostructured silicas. D. J. Giliopoulos, P. I. Xidas, D. N. Bikiaris, **K. S. Triantafyllidis** 126