

**MATERIALS RESEARCH SOCIETY**  
**SYMPOSIUM PROCEEDINGS VOLUME 1622**

# **Fundamentals of Gels and Self-Assembled Polymer Systems**

Symposium held December 1–6, 2013 Boston, Massachusetts. U.S.A.

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# CONTENTS

<b>Preface</b> .....	<b>ix</b>
<b>Materials Research Society Symposium Proceedings</b> .....	<b>.xi</b>
<b>* Hierarchical Self-assembly of Microgel-modified Biomaterials Surfaces</b> .....	<b>1</b>
Yong Wu, Jing Liang, Qichen Wang, and Matthew Libera	
<b>* Correlation between Mechanical Properties and Structure in Polymer Gels with Controlled Network Structure</b> .....	<b>7</b>
Takamasa Sakai, Yuki Akagi, and Ung-il Chung	
<b>Fabrication of Piezoelectric-rubber of Large Piezoelectric Property</b> .....	<b>17</b>
Shogo Mamada, Naoyuki Yaguchi, Masanori Hansaka, Masafumi Yamato, and Hirohisa Yoshida	
<b>Effect of Methanol/Water Mixtures on the Lower Critical Solution Temperature of Poly(N-isopropylacrylamide)</b> .....	<b>25</b>
Sanket A. Deshmukh, Ganesh Kamath, Derrick C. Mancini, and Subramanian K.R.S. Sankaranarayanan	
<b>Mechanical Properties of Polymer Gels with Bimodal Distribution in Strand Length</b> .....	<b>31</b>
Shinji Kondo, Ung-il Chung, and Takamasa Sakai	
<b>Hydrogel Formation from the Concentrated Aqueous Solution of Polyvinyl Alcohol</b> .....	<b>37</b>
Tomoyo Sakaguchi, Suong-Hyu Hyon, and Kazuaki Matsumura	
<b>* Assessment of Functional Properties of Cartilage using Double Quantum Filtered MRI</b> .....	<b>41</b>
Dan Benjamini, Uzi Eliav, Uri Nevo, Peter J. Basser, and Ferenc Horkay	

\*Invited Paper

<b>Strong Tough Gels for 3D Tissue Constructs</b> . . . . .	<b>49</b>
Paul Calvert, Marc in het Panhuis, Geoffrey Spinks, Robert Gorkin, Leo Stevens, Shannon E. Bakarich, Paul Balding, and Damian M. Kirchmayer	
<b>Programmable Anisotropic Microparticles for Self-assembly Applications</b> . . . . .	<b>55</b>
Jonathan Liu, C. Wyatt Shields, Oluwatosin Omofoye, and Gabriel P. Lopez	
<b>Cartilage: Biomimetic Study of the Extracellular Matrix</b> . . . . .	<b>61</b>
Chinedu I. Anyaeji, Peter J. Basser, and Ferenc Horkay	
<b>* Self-assembling Gels of a Hydrophobically Modified Biopolymer</b> . . . . .	<b>69</b>
Pradeep Venkataraman, Joy St. Dennis, Rubo Zheng, Jaspreet Arora, Olasehinde Owoseni, Vijay T. John, and Srinivasa Raghavan	
<b>* Tuning Mechanical Properties of Chondroitin Sulfate-based Hydrogels Using the Double-network Strategy</b> . . . . .	<b>79</b>
Tiffany C. Suekama, Anahita Khanlari, and Stevin H. Gehrke	
<b>Supramolecular Self-assembly Inside Living Mammalian Cells</b> . . . . .	<b>85</b>
Yuan Gao, Ryan Nieuwendaal, Boualem Hammouda, Cristina Berciu, Daniela Nicastro, Jack Douglas, Bing Xu, and Ferenc Horkay	
<b>* Quantitative Model for Clusters of String-like Cooperative Motion in a Coarse-grained Glass-forming Polymer Melt</b> . . . . .	<b>95</b>
Beatriz A. Pazmiño Betancourt, Jack F. Douglas, and Francis W. Starr	
<b>* Field-assembled Polymer Composites</b> . . . . .	<b>113</b>
James E. Martin	
<b>Freezing Assisted Protein Delivery by Using Polymeric Cryoprotectant</b> . . . . .	<b>123</b>
Sana Ahmed and Kazuaki Matsumura	

\*Invited Paper

<b>Phase Separation of Carboxylated Poly-L-lysine</b> .....	<b>129</b>
Esha Das and Kazuaki Matsumura	
<b>* Nanoprobe Diffusion in Poly(Vinyl-alcohol) Gels and Solutions:</b>	
<b>Effects of pH and Dehydration</b> .....	<b>135</b>
Hacène Boukari, Candida Silva, Ralph Nossal, and Ferenc Horkay	
<b>Effects of Salt Concentrations on the Structural Transitions of Peptide-amphiphile Solution</b> .....	<b>147</b>
Takahiro Otsuka and Atsushi Hotta	
<b>Time Interval and Continuous Testing of Stimuli Responsive Hydrogels</b> .....	<b>153</b>
Jeffrey S. Bates and Jules J. Magda	
<b>Rheological Characterization of Starch Gelatinization: Effects of Plasticizer/starch Ratio and Clay Content in Corn-starch/glycerol Thermoplastic starch (TPS)</b> .....	<b>161</b>
Sandra Lara and Felipe Salcedo	
<b>Investigation of Migration Behavior of Rod-like dsDNA in Gel with Precisely Controlled Network Structure</b> .....	<b>169</b>
Xiang Li, Kateryna Khairulina, Ung-il Chung, and Takamasa Sakai	
<b>Shear-thinning and Rapid-recovery Peptide Hydrogel for Biomedical Applications</b> .....	<b>175</b>
Hongzhou John Huang and Xiuzhi Susan Sun	
<b>Mimicking the Extracellular Matrix: Tuning the Mechanical Properties of Chondroitin Sulfate Hydrogels by Copolymerization with Oligo(ethylene glycol) Diacrylates</b> .....	<b>189</b>
Anahita Khanlari, Tiffany C. Suekama, Michael S. Detamore, and Stevin H. Gehrke	
<b>Author Index</b> .....	<b>197</b>
<b>Subject Index</b> .....	<b>199</b>

\*Invited Paper

## PREFACE

This volume contains the Proceedings of Symposium E, “Fundamentals of Gels and Self-Assembly Systems”, from the 2013 MRS Fall Meeting held December 1-6, 2013 in Boston, Massachusetts.

The symposium focused on the most recent advances of the following topical categories: network formation and characterization, structure-property relationships in synthetic and biopolymer gels, self-assembly of biopolymers, responsive gels, nanostructures and composite materials. The symposium covered novel experimental tools and theoretical models to describe the behavior of various self-assembled systems. New insights were reported on the structure and dynamics of synthetic and biopolymer gels. This knowledge is essential for developing novel materials, improving and controlling material properties and performance. Several presentations were dedicated to the interface of polymer materials science with other fields, such as biomaterials and nanoscience. A number of papers dealt with the biomedical applications of gels (e.g., controlled release of antibiotics, tissue engineering). These applications require the creation of a well-defined microenvironment around the biologically active components to achieve the desired results. The papers in this volume illustrate the trends and recent progress in the field of supramolecular self-assembly and the important role of self-assembled structures in biomaterials science.

We would like to thank the staff at the Materials Research Society for their excellent work. We would also like to thank to all the contributors of this volume, authors and reviewers. We hope the volume will inspire for further developments in the field of polymer materials science.

Ferenc Horkay  
Noshir Langrana  
Mitsuhiro Shibayama  
Sandip Basu

May 2014

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## AUTHOR INDEX

- Ahmed, Sana, 123  
Akagi, Yuki, 7  
Anyaeji, Chinedu I., 61  
Arora, Jaspreet, 69
- Bakarich, Shannon E., 49  
Balding, Paul, 49  
Basser, Peter J., 41, 61  
Bates, Jeffrey S., 153  
Benjamini, Dan, 41  
Berciu, Cristina, 85  
Boukari, Hacène, 135
- Calvert, Paul, 49  
Chung, Ung-il, 7, 31, 169
- Das, Esha, 129  
Deshmukh, Sanket A., 25  
Detamore, Michael S., 189  
Douglas, Jack F., 95  
Douglas, Jack, 85
- Eliav, Uzi, 41
- Gao, Yuan, 85  
Gehrke, Stevin H., 79, 189  
Gorkin, Robert, 49
- Hammouda, Boualem, 85  
Hansaka, Masanori, 17  
Horkay, Ferenc, 41, 61, 85, 135  
Hotta, Atsushi, 147  
Huang, Hongzhou John, 175  
Hyon, Suong-Hyu, 37
- in het Panhuis, Marc, 49
- John, Vijay T., 69
- Kamath, Ganesh, 25  
Khairulina, Kateryna, 169  
Khanlari, Anahita, 79, 189
- Kirchmajer, Damian M., 49  
Kondo, Shinji, 31
- Lara, Sandra, 161  
Li, Xiang, 169  
Liang, Jing, 1  
Libera, Matthew, 1  
Liu, Jonathan, 55  
Lopez, Gabriel P., 55
- Magda, Jules J., 153  
Mamada, Shogo, 17  
Mancini, Derrick C., 25  
Martin, James E., 113  
Matsumura, Kazuaki, 123  
Matsumura, Kazuaki, 37, 129
- Nevo, Uri, 41  
Nicastro, Daniela, 85  
Nieuwendaal, Ryan, 85  
Nossal, Ralph, 135
- Omofoye, Oluwatosin, 55  
Otsuka, Takahiro, 147  
Owoseni, Olasehinde, 69
- Pazmiño Betancourt, Beatriz A., 95
- Raghavan, Srinivasa, 69
- Sakaguchi, Tomoyo, 37  
Sakai, Takamasa, 7, 31, 169  
Salcedo, Felipe, 161  
Sankaranarayanan, Subramanian  
K.R.S., 25  
Silva, Candida, 135  
Spinks, Geoffrey, 49  
St. Dennis, Joy, 69  
Starr, Francis W., 95  
Stevens, Leo, 49  
Suekama, Tiffany C., 79, 189  
Sun, Xiuzhi Susan, 175

Venkataraman, Pradeep, 69

Wang, Qichen, 1

Wu, Yong, 1

Wyatt Shields, C., 55

Xu, Bing, 85

Yaguchi, Naoyuki, 17

Yamato, Masafumi, 17

Yoshida, Hirohisa, 17

Zheng, Rubo, 69

## SUBJECT INDEX

- biomaterial, 1, 37, 69, 79, 123, 161, 175, 189
- biomedical, 37, 41, 123, 175
- biomimetic (assembly), 61
  
- chemical synthesis, 153
- colloid, 147
- composite, 17
  
- diffusion, 135, 169
  
- elastic properties, 7, 61
  
- fracture, 7
  
- ion-exchange material, 153
  
- macromolecular structure, 123
- magnetic properties, 113
- microstructure, 55
  
- nanostructure, 85
- nuclear magnetic resonance (NMR), 41
  
- phase transformation, 25, 129
- piezoelectric, 17
- polymer, 7, 25, 37, 49, 55, 69, 79, 95, 113, 129, 135, 153, 189
- polymerization, 1
  
- self-assembly, 1, 55, 69, 85, 95, 129, 147
- sensor, 17
- simulation, 25, 95
- sol-gel, 135, 147, 161, 169, 175
- stress/strain relationship, 31, 79, 189
- structural, 31, 169
  
- thermal conductivity, 113
- tissue, 41, 49, 61
- toughness, 31, 49
- transmission electron microscopy (TEM), 85
  
- viscoelasticity, 161