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**RPPR Final Report**  
as of 17-Jan-2020

Agency Code:

Proposal Number: 74628CHCF

**Agreement Number: W911NF-19-1-0083**

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**Report Date:** 04-May-2020

Date Received: 13-Jan-2020

**Final Report** for Period Beginning 05-Feb-2019 and Ending 04-Feb-2020

**Title:** United States-Japan Polymer Symposium: Macromolecules: Challenges and Opportunities for the 21st Century

**Begin Performance Period:** 05-Feb-2019

**End Performance Period:** 04-Feb-2020

**Report Term:** 0-Other

Submitted By: Ph.D. Yan Xia

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**Distribution Statement:** 1-Approved for public release; distribution is unlimited.

**STEM Degrees:**

**STEM Participants:**

**Major Goals:** Support the 2019 US-Japan Symposium on Polymer Chemistry

**Accomplishments:** 2019 US-Japan Symposium on Polymer Chemistry was held successfully

**Training Opportunities:** The symposium provided invaluable networking, mentoring, and educational opportunities for junior and underrepresented faculty as well as participating students.

**Results Dissemination:** This symposium was invitation only. The symposium brochure contains a detailed program including the names and contact information of all speakers and industrial observers, the biography of each speaker and an extensive scientific abstracts with figures and references. The brochure was distributed at the symposium to all the participants including students.

**Honors and Awards:** Nothing to Report

**Protocol Activity Status:**

**Technology Transfer:** Nothing to Report

**RPPR Final Report**  
as of 17-Jan-2020

## **2019 US-Japan Symposium on Polymer Chemistry:**

*- Macromolecules: Challenges and Opportunities for the 21st Century -*



**June 18 – June 21, 2019**

**Stanford University**

**Stanford, CA 94305 USA**

# 2019 US-Japan Symposium on Polymer Chemistry

Macromolecules: Challenges and Opportunities for the 21<sup>st</sup> Century

Thank you to the following companies and organizations for their generous support of this symposium.



JSR Corporation



TOSOH



Stanford | Department of Chemistry

**2019 US-Japan Symposium on Polymer Chemistry:**  
*Macromolecules: Challenges and Opportunities for the 21st Century*

**PARTICIPANTS**

**Japan**

**Organizer**

Kyoko Nozaki (U. Tokyo)

**Speakers**

Itaru Hamachi (Kyoto U.)  
Masami Kamigaito (Nagoya U.)  
Takashi Kato (U. Tokyo)  
Akira Matsumoto (Tokyo Medical & Dental U.)  
Yoshiko Miura (Kyushu U.)  
Kotohiro Nomura (Tokyo Metropolitan U.)  
Kyoko Nozaki (U. Tokyo)  
Keiji Numata (Riken)  
Yukari Oda (Kyushu U.)  
Hideyuki Otsuka (Tokyo Inst. of Tech.)  
Shohei Saito (Kyoto U.)  
Michinori Sugimoto (Kyoto U.)  
Takaya Terashima (Kyoto U.)  
Takashi Uemura (U. Tokyo)  
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Ryo Yoshida (U. Tokyo)  
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Masahiro Hatazawa (Sumitomo Seika)  
Junsuke Kitakado (JSR)  
Wataru Makiguchi (Mitsui)  
Tsukasa Mizuhara (PPG)

**USA**

**Organizers**

Robert Waymouth (Stanford)  
Yan Xia (Stanford)

**Speakers**

AJ Boydston (U. Wisconsin, Madison)  
Jeff Byers (Boston College)  
Geoff Coates (Cornell)  
Joseph DeSimone (UNC, Carbon)  
Craig Hawker (UC Santa Barbara)  
Rebekka Klausen (John Hopkins)  
Kris Matyjaszewski (Carnegie Mellon)  
Heather Maynard (UCLA)  
Garret Miyake (Colorado State)  
Jeff Moore (Illinois)  
Al Nelson (U. Washington)  
Stuart Rowan (U. Chicago)  
Brent Sumerlin (U. Florida)  
Robert Waymouth (Stanford)  
Karen Wooley (Texas A&M)  
Yan Xia (Stanford)

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## 2019 US-Japan Symposium on Polymer Chemistry Brief Program

Welcome Reception: Monday, June 17 5:30 - 7:30pm, Sapp Patio

Poster Session: Tuesday, June 18 5:30 - 7:00pm, Sapp Gallery

Excursion: Thursday, 2:30 - 10:00pm, Portola Vineyards & San Francisco Bay Dinner Cruise

Tuesday June 18		Wednesday June 19		Thursday June 20		Friday June 21	
8:00		8:00		8:00		8:00	
8:30	Opening Remarks (8:30 - 8:45)	8:30	Suginome (8:30 - 9:05)	8:30	Moore (8:30 - 9:05)	8:30	Nozaki (8:30 - 9:05)
8:45	Hawker (8:45 - 9:20)	9:05	Matyjaszewski (9:05 - 9:40)	9:05	Yoshie (9:05 - 9:40)	9:05	Coates (9:05 - 9:40)
9:20	Kamigaito (9:20 - 9:55)	9:40	Terashima (9:40 - 10:15)	9:40	Byers (9:40 - 10:15)	9:40	Matsumoto (9:40 - 10:15)
9:55	Maynard (9:55 - 10:30)	10:15	Break (10:15 - 10:45)	10:15	Break (10:15 - 10:45)	10:15	Break (10:15 - 10:45)
10:30	Break (10:30 - 11:00)	10:45	Miyake (10:45 - 11:20)	10:45	Kato (10:45 - 11:20)	10:45	Waymouth (10:45 - 11:20)
11:00	Uemura (11:00 - 11:35)	11:20	Hamachi (11:20 - 11:55)	11:20	Saito (11:20 - 11:55)	11:20	Miura (11:20 - 11:55)
11:35	Wooley (11:35 - 12:10)	11:55	Klausen (11:55 - 12:30)	11:55	Xia (11:55 - 12:30)	11:55	Closing Remarks
12:10	Lunch (12:10 - 1:45)	12:30	Lunch (12:30 - 2:00)	12:30	Break (12:30 - 2:30)	12:00	
13:45	Yagai (1:45 - 2:20)	14:00	DeSimone (2:00 - 2:35)	14:30	Excursion (2:30 - 10:00)		
14:20	Rowan (2:20 - 2:55)	14:35	Yoshida (2:35 - 3:10)				
14:55	Otsuka (2:55 - 3:30)	15:10	Nelson (3:10 - 3:45)				
15:30	Break (3:30 - 4:00)	15:45	Break (3:45 - 4:15)				
16:00	Sumerlin (4:00 - 4:35)	16:15	Oda (4:15 - 4:50)				
16:35	Nomura (4:35 - 5:10)	16:50	Boydston (4:50 - 5:25)				
17:30	Poster Session (5:30 - 7:00)	17:25	Numata (5:25 - 6:00)				
		18:00					
						22:00	

# 2019 US-Japan Symposium on Polymer Chemistry

Macromolecules: Challenges and Opportunities for the 21<sup>st</sup> Century

June 18 – June 21

Stanford University

Detailed Program

## Monday, June 17

5:30 – 7:00 pm

### Welcome Reception – Sapp Patio

Local wines and hors d'oeuvres

## Tuesday, June 18

8:30 am Waymouth & Xia

### Opening Remarks - Sapp 114

8:45 am Craig Hawker

*Bio-inspired Materials*

9:20 am Masami Kamigaito

*Vinyl Monomer Sequence Control via Precision Polymerization*

9:55 am Heather Maynard

*New Chemistries for Site-Specific Conjugation to Proteins and Peptides to Enhance Therapeutic Drug Delivery*

10:30 am

### Coffee Break – Sapp Gallery

11:00 am Takashi Uemura

*Nanoconfined Polymer Chemistry*

11:35 am Karen Wooley

*Natural Product-based Polymers that Address Health-Food-Energy-Water Challenges*

12:10 am

### Lunch – Sapp Patio

1:45 pm Shiki Yagai

*Foldable Supramolecular Polymers*

2:20 pm Stuart Rowan

*Design and Synthesis of Adaptive Polymeric Materials*

2:55 pm Hideyuki Otsuka

*Design of Self-healing and Mechanochromic Polymers Based on Dynamic Covalent Chemistry*

3:30 pm

### Coffee Break – Sapp Gallery

4:00 pm Brent Sumerlin

*Responsive Materials from Dynamic Bonds*

4:35 pm Kotohiro Nomura

*Transition Metal Catalyzed Olefin Insertion Copolymerization and Ring Opening Metathesis Polymerization with Cyclic Olefins*

5:30 pm - 7:00 pm

### Poster Session – Sapp Gallery



### Wednesday, June 19

- 8:30 am Michinori Suginome *Catalytic Chirality Transfer through Single-Handed Helically Dynamic Macromolecules PQX*
- 9:05 am Kris Matyjaszewski *Billion Times More Active ATRP Catalysts and Benign Initiation Systems*
- 9:40 am Takaya Terashima *Controlled Self-Assembly and Dynamic Self-Sorting of Amphiphilic Polymers*
- 10:15 am **Coffee Break – Sapp Gallery**
- 10:45 am Garret Miyake *Strongly Reducing Organic Photoredox Catalysts for ATRP*
- 11:20 am Itaru Hamachi *Imaging and Function of Self-sorted Supramolecular Fibers*
- 11:55 am Rebekka Klausen *Atomically Precise Synthesis for Next Generation Materials*
- 12:30 pm **Lunch – Sapp Patio**
- 2:00 pm Joseph DeSimone *Future Fabricated with Light: Enabling the Digital Revolution in Polymer Manufacturing*
- 2:35 pm Ryo Yoshida *Self-Oscillating Polymer Gels as Biomimetic and Smart Softmaterials*
- 3:10 pm Al Nelson *Designing Polymeric Hydrogels for 3D Printing Microbes*
- 3:45 pm **Coffee Break – Sapp Gallery**
- 4:15 pm Yukari Oda *Construction of Bio-inert and Adhesive Interfaces based on Polymer Design*
- 4:50 pm AJ Boydston *Scaling Up and Down with Photoredox-Mediated Metal-Free ROMP*
- 5:25 pm Keiji Numata *Chemoenzymatic synthesis of polypeptides based on spider silk spinning mechanism*

### Thursday, June 20

- 8:30 am Jeff Moore *Lifecycle Control of Polymer Materials*
- 9:05 am Naoko Yoshie *Dynamically Crosslinked Polymers with Toughness, Self-recoverability and Self-healing Ability*
- 9:40 am Jeff Byers *Switchable and Dynamic Iron-Based Catalysts for Ring-Opening Polymerization Reactions*
- 10:15 am **Coffee Break – Sapp Gallery**
- 10:45 am Takashi Kato *Functional Liquid Crystalline Polymers for New Generation of Materials*
- 11:20 am Shohei Saito *Flapping molecules for photo- and mechanoresponsive materials*
- 11:55 am Yan Xia *Macromolecular Ladders with Dramatic and Multifaceted Response to Mechanical Force*
- 12:30 pm **Break with Box Lunch**
- 2:30 pm **Excursion to Portola Vineyards**  
Bus leaves at 2:30 pm
- 6:30 pm **Symposium Banquet, Hornblower Dinner Cruise**  
Boarding begins at 6:30 pm at Pier 3
- 10:00 pm **Return to Stanford**

**Friday, June 21**

8:30 am	Kyoko Nozaki	<i>Coordination copolymerization of olefins with polar monomers: Challenges for new monomers</i>
9:05 am	Geoff Coates	<i>New Methods for the Synthesis of Sustainable Polymers</i>
9:40 am	Akira Matsumoto	<i>"Borono-lectin" based polymer engineering for smart drug delivery systems</i>
10:15 am		<b>Coffee Break – Sapp Gallery</b>
10:45 am	Robert Waymouth	<i>Organocatalytic Polymerization: Development of New Gene Delivery Agents</i>
11:20 am	Yoshiko Miura	<i>Glycopolymer Nanotechnology and Nanomedicine</i>
11:55 am		<b>Closing Remarks</b>