

Curriculum Vitae



Name: Mitsuo Sawamoto

Date of birth: December 12, 1951 (Kyoto, Japan)

Title: Professor, Ph.D. (Dr. Eng., Kyoto University)

Affiliation: Department of Polymer Chemistry, Graduate School of Engineering, Kyoto University
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Current Positions: Professor of Polymer Chemistry, Kyoto University
Member, The Science Council of Japan (SCJ)
Titular Member, Polymer Division,
International Union of Pure and Applied Chemistry (IUPAC)
Advisory Editor, *Journal of Polymer Science, Part A: Polymer Chemistry*

Education: BS (1974) and MS (1976), Department of Polymer Chemistry, Kyoto University;
Ph.D./Dr. Eng. (1979), Kyoto University (in Polymer Chemistry; Thesis Advisor:
Professor Toshinobu Higashimura)

Professional Appointments:

(A) Academic Appointments

- 1980–81 Visiting Scientist, Institute of Polymer Science, The University of Akron
(Professor Joseph P. Kennedy)
- 1981–91 Research Instructor, Department of Polymer Chemistry, Kyoto University
- 1991–93 Lecturer, Department of Polymer Chemistry, Kyoto University
- 1993–94 Associate Professor, Department of Polymer Chemistry, Kyoto University
- 1994– Professor, Department of Polymer Chemistry, Kyoto University

(B) The Science Council of Japan (SCJ)

- 2002–05 Member, Special Liaison Committee for Chemical Research (Polymer Chemistry)
(the 19th Term)
- 2005–08 Executive Member, Division III (the 20th Term)
- 2008–11 Executive Member, Division III (the 21st Term)
- 2011–14 Executive Member, Division III (the 22nd Term)
- 2011–14 Chair, Subcommittee of Polymer Chemistry, Committee of Chemistry, Division III
(the 22nd Term)
- 2014– Member, The Science Council of Japan (SCJ) (The 23rd Term)

(C) Governmental Committees

- 1996–00 Expert Member, Committee of Industrial and Scientific Technology Development,
New Materials Division, the Ministry of International Trade and Industry (MITI),
Japan
- 1999–03 Member, Sub-Committee of Technology Evaluation, Research Institute of Innovative
Technology for the Earth (RITE), Japan
- 2006–07 Member, Special Committee for Innovation Promotion,
The Cabinet Office of Japan and The Science Council of Japan

(D) Societal Appointments

(a) *The Society of Polymer Science, Japan (SPSJ)*

- 2002–11 Member, Board of Executive Directors,
- 2002–04 Chairperson, Committee of International Relations,
- 2004–06 Editor-in-Chief, "*Kobunshi*" (*High Polymers*; the organ of SPSJ),
- 2006–08 Vice President and Permanent Executive Member,
- 2008–10 President, The Society of Polymer Science, Japan

(b) *International Union of Pure and Applied Chemistry (IUPAC)*

- 2002–05 Task Group Leader,
Macromolecular Division (MMD), Strategic Project "Strategic Study of World
Polymer Science" (#2002-057-1-400)
- 2006–08 Associate Member, IUPAC (International Union of Pure and Applied Chemistry),
Polymer Division (Division IV)
- 2008–11 Titular Member, IUPAC (International Union of Pure and Applied Chemistry),
Polymer Division (Division IV)
- 2012–14 Associate Member, IUPAC (International Union of Pure and Applied Chemistry),
Polymer Division (Division IV)
- 2015–18 Titular Member, IUPAC (International Union of Pure and Applied Chemistry),
Polymer Division (Division IV)

(E) Journal Editorial Appointments (except for editorial advisory boards)

- 1995– Editor, *Journal of Polymer Science, Part A: Polymer Chemistry*
- 2014– Advisory Editor, *Journal of Polymer Science, Part A: Polymer Chemistry*
- 2005–14 Member, Editorial Board, *Chemistry: An Asian Journal*
- 2006–08 Editor-in-Chief, "*Kobunshi*" (*High Polymers*), the organ of The Society of
Polymer Science, Japan

(F) International Conferences and Symposia

- 1998 Organizer, The Taniguchi Conference on Polymer Synthesis towards the 21st Century,
May 1998, Kyoto
- 2001–05 Member, Organizing Committee, The 2005 International Chemical Congress,
(Pacifichem 2005)
- 2006–10 Member, Organizing Committee, The 2010 International Chemical Congress,
(Pacifichem 2010)

(G) Research Projects

- 1988–91 Group Leader, "Functional Polymers on the Basis of End-Reactive Oligomers",
International Joint Research Grant, the Ministry of International Trade and Industry /
New Energy and Industrial Technology Organization (MITI/NEDO), Japan
- 1995–00 Group Leader, "Precision Polymerization Project", MITI/NEDO, Japan
- 2001–07 Group Leader, "Nano-Structured Polymeric Materials Project", "Nano-Materials
Technology Program", the Ministry of Economy, Trade and Industry (METI) /
NEDO, Japan
- 2006–10 Principal Investigator, "Sequence-Regulated Macromolecules: Creation of
Novel Polymer Science via Interdisciplinary Approach", Grant-in-Aid for Scientific
Research: Creation of Novel Academic Disciplines, the Ministry of Education,
Science, Culture, and Sports, Japan and the Japan Society for Promotion of Science

- (JSPS)
- 2007-12 Project Leader, "International Center for Integrated Research and Advanced Education in Materials Science," Kyoto University, The Global Center of Excellence (GCOE) Program granted by the Ministry of Education, Science, Culture and Sports, The Japanese Government and the Japan Society for Promotion of Science (JSPS)
- 2012-16 Principal Investigator, "Precision Radical Polymerization with Highly Active Redox Catalysts", Grant-in-Aid for Scientific Research (A), the Ministry of Education, Science, Culture, and Sports, Japan and the Japan Society for Promotion of Science

Awards:

- 1992 Award of the Society of Polymer Science, Japan (for FY1991)
- 1999 Divisional Research Award of the Chemical Society of Japan (for FY1998)
- 2002 Arthur K. Doolittle Award [American Chemical Society, Division of Polymeric Materials: Science and Engineering (PMSE)] (for 2001)
- 2012 Macro Group UK Medal for Outstanding Achievement in Polymer Science [Royal Society of Chemistry, The Pure and Applied Macromolecular Chemistry Group (Macro Group UK)] (for 2012)
- 2013 SPSJ Award for Outstanding Achievement in Polymer Science and Technology, [SPSJ: The Society of Polymer Science, Japan] (for FY2012)
- 2014 NIMS Award on Strong Future of Soft Materials [NIMS: National Institute for Materials Science, Japan]
- 2015 Medal of Honor with Purple Ribbon [presented by the Emperor Akihito, the Prime Minister of Japan (Shinzo Abe) and the Ministry of Education, Science, Culture and Sports]
- 2016 Alexander von Humboldt Research Award [The Humboldt Foundation, Germany]
- 2017 Benjamin Franklin Medal in Chemistry [The Franklin Institute, U. S. A.]

Lectureships (international):

**Plenary Lectures, 15; Special Lectures, 9; Invited Lectures 172;
Named Lectureship, 4; Gordon Research Conferences, 6 lectures**

- 2001 Aggarwal Lectureship in Polymer Science (Cornell University, Ithaca, NY, USA)
- 2003 Rohm & Haas Lectureship in Organic Chemistry (University of California at Berkeley, Berkeley, CA, USA)
- 2007 Solomon Lectureship, The Australian Academy of Technological Sciences (ATSE) and the Polymer Division of the Royal Australian Chemical Institute (RACI) (Melbourne, Sydney, Adelaide, and Brisbane, Australia; Auckland, New Zealand)
- 2008 Ralph Milkovich Memorial Lectureship, The University of Akron (Akron, Ohio, USA)
- 2002 Plenary Lecture, The 41st IUPAC World Polymer Congress (Beijing, China)
- 2004 Plenary Lecture, Malaysian Chemical Congress 2004 (MCC 2004) (Kuala Lumpur, Malaysia)
- 2007 Plenary Lecture, The 2007 European Polymer Conference, The European Polymer Federation (Portrotz, Slovenia)
- 2012 Plenary Lecture, MacroGroupUK International Conference on Polymer Synthesis and UKPCF International Conference on Polymer Colloids (Warwick 2012) (Warwick, UK)
- 2013 Plenary Lecture, The Third International Symposium "Frontiers in Polymer Science" (Sitges, Italy)

- 2013 Plenary Lecture, The 34th Australasian Polymer Symposium (the Royal Australian Chemical Institute) (Darwin, Australia)
- 2013 Plenary Lecture, The 10th IUPAC International Conference on Advanced Polymers via Macromolecular Engineering (APME-10) (Durham, UK)
- 2014 Award Lecture, NIMS Conference 2014 "A Strong Future from Soft Materials", National Institute for Materials Science, Japan (Tsukuba, Japan)
- 2015 Keynote Lecture, European Polymer Congress 2015 (EPF2015), European Polymer Federation (Dresden, Germany)
- 2015 Plenary Lecture, The 4th Federation of Asian Societies - International Polymer Congress (4FAPS-IPC 2015) (Kuala Lumpur, Malaysia)
- 2016 Plenary Lecture, Warwick 2016, the Macro Group UK (Warwick, UK)
- 2016 Plenary Lecture, Emerging Polymer Technologies Summit (EPTS'16) (Merbourne, Australia)
- 2016 Plenary Lecture, The First International Conference of Molecular Engineering of Polymers (MEP-1) (Fudan, China)

Research Interest:

- (a) Living and precisely controlled polymerizations: Radical and cationic.
- (b) Cationic polymerization and the chemistry of carbocations
- (c) Radical polymerization and transition metal catalysis
- (d) Precision polymer synthesis via living polymerizations

Publications and Citations:

> **350** original papers; >40 review and book chapters; >45 patents.
 Total Citation (1974–2014) (as of January 2015): >**17,100 times**

Ranked **#1** in Japan and **#3** in the world among the **Most Cited Scientists** in organic and polymer chemistry for the period of 1997–2001

[*Nippon Keizai Shinbun (Japan Business News)* 2001].

Ref (1) in the following section: Ranked **#2** in the **Most Cited Papers** published in *Macromolecules* (impact factor 5.927 in 2014) during the 40 years since its foundation:

[Lodge, T.P. *Macromolecules* **2007**, *40*, 1-2.]

Ref (2) in the following section: Selected as one of the **ACS 2007 Highly Cited Papers** (within top 1%) published in *Chemical Reviews* (impact factor 45.661 in 2014) in the ten latest years (1998–2007):

[http://pubs.acs.org/journals/promo/most/highly_cited/index.html]

Best Cited Papers (total 28 papers with > 100 citations; as of January 2014):

(Total >**13,600** non-self citations for the following 28 papers)

- (1) cited > **2,251** times – *Chemical Reviews*, **2001**, *101*, 3689–3745; a first comprehensive and critical review on metal-catalyzed living radical polymerization. [ACS 2007 Highly Cited Papers (within top 1%) published in *Chemical Reviews* in the ten latest years (1998–2007)]
- (2) cited > **2,111** times – *Macromolecules* **1995**, *28*, 1721–1723; the first paper on metal-catalyzed living radical polymerization. [#2 Best Cited Paper ever published in *Macromolecules*; see *ibid.*, **2007**, *40*, 1.]
- (3) cited > **429** times – *Chemical Reviews*, **2009**, *109*, 4963–5050; a second comprehensive and critical review on metal-catalyzed living radical polymerization.

- (4) cited > **347** times – *Macromolecules* **1997**, *30*, 4507-4510; the first paper on Fe(II)-catalyzed living radical polymerization.
- (5) cited > **341** times – *Macromolecules* **1984**, *17*, 265-268, the first paper on Lewis acid-catalyzed living cationic polymerization.
- (6) cited > **298** times – *Progress in Polymer Science*, **1991**, *16*, 111-172; a comprehensive and critical review on living cationic polymerization.
- (7) cited > **277** times – *Macromolecules* **1997**, *30*, 2249-2253; the first paper on Ni(II)-catalyzed living radical polymerization.
- (8) cited > **243** times – *Macromolecules* **1996**, *29*, 1070-1072; Ru(II)-catalyzed living radical polymerization for precise molecular weight.
- (9) cited > **229** times – *Trends in Polymer Science*, **1996**, *4*, 371-377; a concise review on metal-catalyzed living radical polymerization.
- (10) cited > **174** times – *Macromolecules* **1998**, *31*, 6762-6768; Calixarene-core multi-functional star polymers via the Ru(II)-catalyzed living radical polymerization.
- (11) cited > **157** times – *Macromolecules* **1998**, *31*, 6756-6861; new Ni(II) catalysts and block or random copolymers in living radical polymerization.
- (12) cited > **154** times – *Macromolecules* **2001**, *34*, 215-221; the first paper on star-shaped polymers by metal-catalyzed living radical polymerization.
- (13) cited > **151** times – *Macromolecules* **2004**, *37*, 1702-1710; RAFT polymerization of *N*-isopoylacrylamide for stereoregular polymers of controlled molecular weight. [with Y. Okamoto and M. Kamigaito]
- (14) cited > **142** times – *Macromolecules* **2002**, *35*, 330-333; the first paper on controlled radical polymerization of vinyl acetate with Fe(I) dinuclear complex catalysts.
- (15) cited > **141** times – *Tetrahedron* **1997**, *53*, 15445-15457; a review focusing design of initiators and reaction mechanism in living radical polymerization.
- (16) cited > **140** times – *Macromolecules* **1998**, *31*, 557-562; multifunctional initiators for living radical polymerization.
- (17) cited > **139** times – *Macromolecules* **2003**, *36*, 543-545; isotactic Poly(NIPAM) by RAFT polymerization in the presence of Lewis acids. [with Y. Okamoto and M. Kamigaito]
- (18) cited > **133** times – *Macromolecules* **1996**, *29*, 6979-6982; block copolymers via the Ru(II)-catalyzed living radical polymerization.
- (19) cited > **131** times – *Macromolecules* **1997**, *30*, 2244-2248; the first paper reporting a living radical polymerization with Ru(II) catalysts in water dispersion.
- (20) cited > **128** times – *Macromolecules* **1984**, *17*, 2228-2230; synthesis of monodisperse and block polymers in living cationic polymerization.
- (21) cited > **128** times – *Macromolecules* **1999**, *32*, 2420-2424; the first paper on Re(V) catalysts for living radical polymerization.
- (22) cited > **126** times – *Macromolecular Symposia* **1988**, *13-14*, 457-471; a concise review on initiating systems in Ru(II)-catalyzed living cationic polymerization.
- (23) cited > **119** times – *Macromolecules* **1987**, *20*, 2693-2697; Zn(II)-Lewis acids as novel catalysts for living cationic polymerization.
- (24) cited > **116** times – *Macromolecules* **1991**, *24*, 2309-2313; the first paper on star polymers by living cationic polymerization.
- (25) cited > **114** times – *Acc. Chem. Res.* **2008**, *41*, 1120-1132; an up-dated account on metal-catalyzed living radical polymerization.
- (26) cited > **113** times – *Advances in Polymer Science* **1984**, *62*, 49-94; a then comprehensive review on living cationic polymerization and selective cationic oligomerization.
- (27) cited > **109** times – *Macromolecules* **1999**, *32*, 3820-3823; halaf-metallocene catalysts for living radical polymerization.

(28) cited > **100** times – *J. Am. Chem. Soc.* **2004**, *126*, 14702-14703; living cationic and radical polymerizations by microreactor-flow systems. [with J. Yoshida]