

Dr. Craig Jon Hawker

Date of Birth: January 11, 1964
Toowoomba, Australia

Research Interests: *Synthetic Polymer Chemistry, Nanotechnology--Materials science that integrates fundamental studies with the development of nanostructured materials for advanced properties and functions in microelectronics and biotechnology*

Professional History:

2013-present	Director, California Nanosystems Institute University of California, Santa Barbara
2013-present	Clarke Professor University of California, Santa Barbara
2011-present	Director, Dow Materials Institute University of California, Santa Barbara
2011-2014	KFUPM Chair Professor, King Fahd University of Petroleum and Minerals, Saudi Arabia
2010-present	Alan and Ruth Heeger Chair in Interdisciplinary Science University of California, Santa Barbara
2004-present	Director and Co-Director of Materials Research Laboratory Professor of Materials, Chemistry and Biochemistry University of California, Santa Barbara
1993-2004	Research Staff Member, IBM Almaden Research Center
2001-present	Honorary Professor School of Chemistry and Molecular Biosciences University of Queensland
1990-1993	Queen Elizabeth II Research Fellow, University of Queensland

Education:

- 1988-1990** Post-doctoral Research Associate, Cornell University
Supervisor: *Professor J.M.J. Fréchet*
- 1985-1988** Ph.D. Degree, University of Cambridge, U.K.
Supervisor: *Professor Sir A.R. Battersby*
Thesis title: *Biosynthesis of Vitamin B₁₂ - Model Studies on the Spiro Intermediate*
- 1981-1984** B.Sc. (1st Class Honors), University of Queensland

Awards:

- 2016 Elected Member of the National Academy of Inventors
- 2015 Elected as Fellow: American Association for the Advancement of Science (AAAS)
- 2013 ACS Award in Polymer Chemistry, American Chemical Society
- 2013 Elected Fellow, Royal Society of Chemistry
- 2012 Centenary Prize, Royal Society of Chemistry
- 2011 KFUPM Chair Professor, King Fahd University of Petroleum and Minerals, Saudi Arabia
- 2011 Arthur C. Cope Scholar, American Chemical Society
- 2010 Elected Fellow, American Chemical Society
- 2010 Elected, Fellow of the Royal Society
- 2010 Polymer Division Fellow, American Chemical Society
- 2010 Macro Group UK International Medal for Outstanding Achievement
- 2009 PMSE Fellow, American Chemical Society
- 2008 DSM – International Performance Materials Award, IUPAC
- 2007 Mark Scholar Award, American Chemical Society
- 2006 IBM Research Division Award
- 2005 Dutch Polymer Award, Dutch Chemical Institute
- 2005 ACS Award in Applied Polymer Science, American Chemical Society
- 2004 Industrial Scientist Award, American Chemical Society
- 2003 Co-operative Research Award, American Chemical Society
- 2002 IBM Corporate Technical Recognition Award
- 2001 Carl S. Marvel Award in Creative Polymer Science, American Chemical Society
- 2000 Young Scientists Award, IUPAC
- 1999 Patent Invention Award, IBM Corporation
- 1997 Arthur K. Doolittle Award, American Chemical Society
- 1997 Patent Invention Award, IBM Corporation

1995 Innovation Award, IBM Corporation
1993 Rennie Memorial Medal, Royal Australian Chemical Institute
1992 Research Award, Australian Research Council
1991 Treloar Prize, Polymer Division, Royal Australian Chemical Institute
1990 Queen Elizabeth II Research Fellowship, Australian Research Council
1985-1988 Ribbands Scholar, Wolfson College, University of Cambridge
1985-1988 1851 Research Scholarship, Royal Commission for the Exhibition of 1851
1985-1988 Overseas Research Scheme Award, S.E.R.C.
1988 Science Fellow, Harkness Fellowships
1985 Commonwealth Scholarship and Fellowship Award, British Council
1985 Masson Memorial Medal, Royal Australian Chemical Institute
1985 University Medal, University of Queensland
1984 Poole Award, University of Queensland
1984 CSR Chemicals Prize, University of Queensland
1983 Douglas McNaughton Scholarship, University of Queensland
1983 T.G.H. Jones Scholarship, University of Queensland
1982 Edward Taylor Memorial Prize, University of Queensland
1981 Chemistry Prize, University of Queensland

Named Lecturerships:

2015 Dow Lecturer, Northwestern University
2015 Sproull Lecturer, Cornell University
2015 Purves Lecturer, McGill University
2015 The Grandpierre Lecturer, Columbia University
2015 Eli Lilly Distinguished Lecturer, Colorado State University
2015 Pettit Lecturer, University of Texas, Austin
2014 Bridgestone Distinguished Lecturer, Case Western Reserve University
2014 Richard T. Arnold Lecturer, Southern Illinois University
2014 William G. Dauben Lecturer, University of California, Berkeley
2014 McGavock Lectureship, Trinity University
2014 Peter Timms Lecturer, University of Bristol, UK
2013 Otto Warburg Lecturer, University of Bayreuth, Germany
2013 Gassman Lecturer, University of Minnesota
2013 MacLean Lecturer, McMaster University
2012 CPE Lecturer, Imperial College of Science and Technology, UK
2012 Merck-Karl Pfister Lecturer, MIT
2012 Marker Lecturer, Pennsylvania State University
2012 Eastman Lecturer, University of Akron
2011 Class of '60 Lecturer, Williams College
2011 Commencement Speaker, University of California, Santa Barbara
2010 Bayer Lecturer, University of Southern Mississippi
2010 RSC Chemical Sciences Lecturer, UK
2010 Moses Gomberg Lecturer, University of Michigan
2007 Humphrey Memorial Lecturer, University of Vermont
2006 Proctor & Gamble Lecturer, Wright State University

2006	Dillion Steele Lecturer, University of Queensland, Australia
2006	IMS Distinguished Lecturer, University of Connecticut
2005	Murtiashaw Lecturer, University of South Carolina
2005	Discovery Lecturer, DuPont Central Research
2005	Frontiers Lecturer, Department of Chemistry, Texas A&M University.
2004	Victor M. Chambers Memorial Lecturer, Department of Chemistry, University of Rochester
2004	Cherry Emerson Jr. Lecturer, Department of Chemistry, Georgia Institute of Technology
2003	Bayer-Stein Lecturer, Department of Chemistry, University of Massachusetts, Amherst
2002	Whitby Memorial Lecturer, Department of Polymer Science, University of Akron
2002	Inaugural Cornforth Lecturer, Department of Chemistry, University of Sydney, Australia
2002	Melville Lecturer, Department of Chemistry, University of Cambridge, UK
1999	Rauscher Lecturer, Rensselaer Polytechnic Institute, NY
1998	Carothers Lecturer, DuPont Central Research

Professional Activities:

- Editor, Journal of Polymer Science
- International Editorial Board, Angewandte Chemie International Edition
- Editorial Board, Chemical Communications
- Editorial Board, ACS Combinatorial Science
- Editorial Board, Polymer Bulletin
- Editorial Board, International Journal of Polymeric Materials
- Editorial Board, Chemistry of Materials
- Editorial Board, Macromolecules
- Editorial Board, Progress in Polymer Science
- Editorial Board, Polymer
- Editorial Board, Australian Journal of Chemistry
- Editorial Board, Nanotechnology, Science and Applications
- Editorial Board, Current Opinion in Solid State and Materials Science
- Chair, 2003 Polymers (East) Gordon Research Conference
- Advisory Board, The Knowledge Foundation
- Adjunct Professor of Chemistry, University of Queensland
- Royal Australian Chemical Institute, Member
- Member, Polymer Division, Royal Australian Chemical Institute
- U.S.A. Representative, International Relations Committee, RACI
- American Chemical Society, Member
- Member, Division of Polymer Chemistry, ACS
- Member, Division of Polymeric Materials:

Publications:

448. Murakami, T.; Schmidt, B.V.K.J.; Brown, H.R.; Hawker, C.J. "One-Pot "Click" Fabrication of Slide-Ring Gels", *Macromolecules*, **2015**, *48*, 7774-7781.
447. Melker, A.; Fors, B.P.; Hawker, C.J.; Poelma, J.E. "Continuous flow synthesis of poly(methyl methacrylate) via a light-mediated controlled radical polymerization", *J. Polym. Sci., Polym. Chem.*; **2015**, *53*, 2693-2698.
446. Montarnal, D.; Delbosc, N.; Chamignon, C.; Virolleaud, M.A.; Luo, Y.D.; Hawker, C.J.; Drockenmuller, E.; Bernard, J., "Highly Ordered Nanoporous Films from Supramolecular Diblock Copolymers with Hydrogen-Bonding Junctions", *Angew. Chem. Int. Ed.* **2015**, *54*, 11117-11121.
445. Sherman, J.B.; Chiu, C.Y.; Fagenson, R.; Wu, G.; Hawker, C.J.; Chabinyk, M.L. "Suppressing crystallization in solution-processed thin films of organic semiconductors", *MRS Commun.*, **2015**, *5*, 447-452.
444. Wang, C X; Braendle, A; Menyo, M S; Pester, C W; Perl, E E; Arias, I; Hawker, C J; Klinger, D. "Catechol-based layer-by-layer assembly of composite coatings: a versatile platform to hierarchical nano-materials", *Soft Matter*, **2015**, *11*, 6173-8.
443. Gutekunst, W.R.; Hawker, C.J., "A General Approach to Sequence-Controlled Polymers Using Macrocyclic Ring Opening Metathesis Polymerization", *J. Am. Chem. Soc.*, **2015**, *137*, 8038-8041.
442. Luo, Y.D.; Montarnal, D.; Kirn, S.; Shi, W.C.; Barteau, K.P.; Pester, C.W.; Hustad, P.D.; Christianson, M.D.; Fredrickson, G.H.; Kramer, E.J.; Hawker, C.J., "Poly(dimethylsiloxane-b-methyl methacrylate): A Promising Candidate for Sub-10 nm Patterning", *Macromolecules*, **2015**, *48*, 3422-3430.
441. Mattson, K.M.; Latimer, A.A.; McGrath, A.J.; Lynd, N.A.; Lundberg, P.; Hudson, Z.M.; Hawker, C.J., "A Facile Synthesis of Catechol-Functionalized Poly(ethylene oxide) Block and Random Copolymers", *J. Polym. Sci., Polym. Chem.*; **2015**, *53*, 2685-2692.
440. Schmidt, B.V.K.J.; Elbert, J.; Scheid, D.; Hawker, C.J.; Klinger, D.; Gallei, M., "Metallopolymer-Based Shape Anisotropic Nanoparticles", *ACS Macro Lett.*, **2015**, 731-735.
439. Shi, W.C.; McGrath, A.J.; Li, Y.L.; Lynd, N.A.; Hawker, C.J.; Fredrickson, G.H.; Kramer, E.J. "Cooperative and Sequential Phase Transitions in it-Poly(propylene oxide)-b-poly(ethylene oxide)-b-it-poly(propylene oxide) Triblock Copolymers", *Macromolecules*, **2015**, *48*, 3069-3079.
438. Fleischmann, C.; Gopez, J.; Lundberg, P.; Ritter, H.; Killips, K.L.; Hawker, C.J.; Klinger, D. "A robust platform for functional microgels via thiol-ene chemistry with reactive polyether-based nanoparticles" *Polym. Chem.*, **2015**, *6*, 2029-2037.

437. Killops, K.L.; Rodriguez, C.G.; Lundberg, P.; Hawker, C.J.; Lynd, N.A. "A synthetic strategy for the preparation of sub-100 nm functional polymer particles of uniform diameter", *Polym. Chem.*, **2015**, *6*, 1431-1435.
436. Zhang, Y.; Lundberg, P.; Diether, M.; Porsch, C.; Janson, C.; Lynd, N.A.; Ducani, C.; Malkoch, M.; Malmstrom, E.; Hawker, C.J. "Histamine-functionalized copolymer micelles as a drug delivery system in 2D and 3D models of breast cancer", *J. Mater. Chem., B*, **2015**, *3*, 2472-2486.
435. Audus, D.J.; Gopez, J.D.; Krogstad, D.V.; Lynd, N.A.; Kramer, E.J.; Hawker, C.J.; Fredrickson, G.H. "Phase behavior of electrostatically complexed polyelectrolyte gels using an embedded fluctuation model", *Soft Matter*, **2015**, *11*, 1214-1225.
434. McGrath, A.J.; Shi, W.C.; Rodriguez, C.G.; Kramer, E.J.; Hawker, C.J.; Lynd, N.A. "Synthetic strategy for preparing chiral double-semicrystalline polyether block copolymers". *Polym. Chem.*, **2015**, *6*, 1465-1473.
433. Handa, N.V.; Serrano, A.V.; Robb, M.J.; Hawker, C.J. "Exploring the Synthesis and Impact of End-Functional Poly(3-hexylthiophene)", *J. Polym. Sci., Polym. Chem.*; **2015**, *53*, 831-841.
432. Sprafke, J.K.; Spruell, J.M.; Mattson, K.M.; Montarnal, D.; McGrath, A.J.; Potzsch, R.; Miyajima, D.; Hu, J.; Latimer, A.A.; Voit, B.I.; Aida, T.; Hawker, C.J. "Revisiting Thiol-yne Chemistry: Selective and Efficient Monoaddition for Block and Graft Copolymer Formation", *J. Polym. Sci., Polym. Chem.*; **2015**, *53*, 319-326.
431. Tsurui, K.; Murai, M.; Ku, S.Y.; Hawker, C.J.; Robb, M.J. "Modulating the Properties of Azulene-Containing Polymers through Controlled Incorporation of Regioisomers", *Adv. Func. Mater.*, **2014**, *24*, 7338-7347.
430. Helmy, S.; Oh, S.; Leibfarth, F.A.; Hawker, C.J.; de Alaniz, J.R., "Design and Synthesis of Donor-Acceptor Stenhouse Adducts: A Visible Light Photoswitch Derived from Furfural", *J. Org. Chem.*, **2014**, *79*, 11316-11329.
429. Krogstad, D.V.; Lynd, N.A.; Miyajima, D.; Gopez, J.; Hawker, C.J.; Kramer, E.J.; Tirrell, M.V., "Structural Evolution of Polyelectrolyte Complex Core Micelles and Ordered-Phase Bulk Materials", *Macromolecules*, **2014**, *47*, 8026-8032.
428. Treat, N.J.; Sprafke, H.; Kramer, J.W.; Clark, P.G.; Barton, B.E.; de Alaniz, J.R.; Fors, B.P.; Hawker, C.J. "Metal-Free Atom Transfer Radical Polymerization", *J. Am. Chem. Soc.*, **2014**, *136*, 16096-16101.
427. Krogstad, D.V.; Choi, S.H.; Lynd, N.A.; Audus, D.J.; Perry, S.L.; Gopez, J.D.; Hawker, C.J.; Kramer, E.J.; Tirrell, M.V. "Small Angle Neutron Scattering Study of Complex Coacervate Micelles and Hydrogels Formed from Ionic Diblock and Triblock Copolymers", *J. Phys. Chem. B*, **2014**, *118*, 13011-13018.
426. Oh, S.S.; Lee, B.F.; Leibfarth, F.A.; Eisenstein, M.; Robb, M.J.; Lynd, N.A.; Hawker, C.J.; Soh, H.T. "Synthetic Aptamer-Polymer Hybrid Constructs for Programmed Drug Delivery into Specific Target Cells", *J. Am. Chem. Soc.*, **2014**, *136*, 15010-15015.
425. Cochran, J.E.; Junk, M.J.N.; Gludell, A.M.; Miller, P.L.; Cowart, J.S.; Toney, M.F.; Hawker, C.J.; Chmelka, B.F.; Chabinyc, M.L. "Molecular Interactions and Ordering in Electrically Doped Polymers: Blends of PBTTT and F(4)TCNQ" *Macromolecules*, **2014**, *47*, 6836-6846.

424. Samoshin, A.V.; Hawker, C.J.; de Alaniz, J.R. "Nitrosocarbonyl Hetero-Diels-Alder Cycloaddition: A New Tool for Conjugation", *ACS Macro Letters*, **2014**, *3*, 753-757.
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422. Klinger, D.; Wang, C. X.; Connal, L. A.; Audus, D. J.; Jang, S. G.; Kraemer, S.; Killops, K. L.; Fredrickson, G. H.; Kramer, E. J.; Hawker, C. J. "A Facile Synthesis of Dynamic, Shape Changing Polymer Particles", *Angew. Chem. Int. Ed.* **2014**, *53*, 7018-7022.
421. Helmy, S.; Leibfarth, F.A.; Oh, S.; Poelma, J.E.; Hawker, C.J.; de Alaniz, J.R. "Photoswitching Using Visible Light: A New Class of Organic Photochromic Molecules", *J. Am. Chem. Soc.*, **2014**, *136*, 8169-8172.
420. Russ, B.; Robb, M.J.; Brunetti, F.G.; Miller, P.L.; Perry, E.E.; Patel, S.N.; Ho, V.; Chang, W.B.; Urban, J.J.; Chabinye, M.L.; Hawker, C.J.; Segalman, R.A. "Power Factor Enhancement in Solution-Processed Organic n-Type Thermoelectrics Through Molecular Design", *Adv. Mater.*, **2014**, *26*, 3473-3477.
419. Treat, N.J.; Fors, B.P.; Kramer, J.W.; Christianson, M.; Chiu, C.Y.; de Alaniz, J.R.; Hawker, C.J. "Controlled Radical Polymerization of Acrylates Regulated by Visible Light", *ACS MacroLetters*, **2014**, *3*, 580-584.
418. Schlitz, R.A.; Brunetti, F.G.; Glaudell, A.M.; Miller, P.L.; Brady, M.A.; Takacs, C.J.; Hawker, C.J.; Chabinye, M.L., "Solubility-Limited Extrinsic n-Type Doping of a High Electron Mobility Polymer for Thermoelectric Applications", *Adv. Mater.*, **2014**, *26*, 2825-2830.
417. Chiu, C.Y.; Wang, H.B.; Brunetti, F.G.; Wudl, F.; Hawker, C.J. "Twisted but Conjugated: Building Blocks for Low Bandgap Polymers", *Angew. Chemie, Int. Ed.* **2014**, *53*, 3996-4000.
416. Faghihnejad, A.; Feldman, K.E.; Yu, J.; Tirrell, M.V.; Israelachvili, J.N.; Hawker, C.J.; Kramer, E.J.; Zeng, H.B. "Adhesion and Surface Interactions of a Self-Healing Polymer with Multiple Hydrogen-Bonding Groups", *Adv. Func. Mater.*, **2014**, *24*, 2322-2333.
415. Luehmann, H.P.; Pressly, E.D.; Detering, L.; Wang, C.; Pierce, R.; Woodard, P.K.; Gropler, R.J.; Hawker, C.J.; Liu, Y.J. "PET/CT Imaging of Chemokine Receptor CCR5 in Vascular Injury Model Using Targeted Nanoparticle", *J. Nucl. Med.*, **2014**, *55*, 629-634.
414. Potzsch, R.; Stahl, B.C.; Komber, H.; Hawker, C.J.; Voit, B.I. "High refractive index polyvinylsulfide materials prepared by selective radical mono-addition thiol-yne chemistry", *Polym. Chem.*, **2014**, *5*, 2911-2921.
413. Groote, R.; Szyja, B.M.; Leibfarth, F.A.; Hawker, C.J.; Doltsinis, N.L.; Sijbesma, R.P. "Strain-Induced Strengthening of the Weakest Link: The Importance of Intermediate Geometry for the Outcome of Mechanochemical Reactions", *Macromolecules*, **2014**, *47*, 1187-1192.
412. Dimitriou, M.D.; Kramer, E.J.; Hawker, C.J., "Advanced Techniques for the Characterization of Surface Structure in Polymer Thin Films and Coatings", *Arabian J. Sci. Eng.*, **2014**, *39*, 1-13.

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410. Ortony, J.H.; Choi, S.H.; Spruell, J.M.; Hunt, J.N.; Lynd, N.A.; Krogstad, D.V.; Urban, V.S.; Hawker, C.J.; Kramer, E.J.; Han, S. "Fluidity and water in nanoscale domains define coacervate hydrogels", *Chem. Sci.*, **2014**, 5, 58-67.
409. Robb, M.J.; Ku, S.Y.; Hawker, C.J. "No Assembly Required: Recent Advances in Fully Conjugated Block Copolymers", *Adv. Mater.*, **2013**, 25, 5686-5700.
408. Potzsch, R.; Komber, H.; Stahl, B.C.; Hawker, C.J.; Voit, B.I. "Radical Thiol-yne Chemistry on Diphenylacetylene: Selective and Quantitative Addition Enabling the Synthesis of Hyperbranched Poly(vinyl sulfide)s", *Macro. Rapid. Commun.*, **2013**, 34, 1772-1778.
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403. Pitet, L.M.; Wuister, S.F.; Peeters, E.; Kramer, E.J.; Hawker, C.J.; Meijer, E.W. "Well-Organized Dense Arrays of Nanodomains in Thin Films of Poly(dimethylsiloxane)-b-poly(lactide) Diblock Copolymers", *Macromolecules*, **2013**, 46, 8289-8295.
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401. Klinger, D.; Robb, M.J.; Spruell, J.M.; Lynd, N.A.; Hawker, C.J.; Connal, L.A., "Supramolecular guests in solvent driven block copolymer assembly: from internally structured nanoparticles to micelles", *Polym. Chem.*, **2013**, 4, 5038-5042.
400. Robb, M.J.; Montarnal, D.; Eisenmenger, N.D.; Ku, S.Y.; Chabinyk, M.L.; Hawker, C.J. "A One-Step Strategy for End-Functionalized Donor-Acceptor Conjugated Polymers", *Macromolecules*, **2013**, 46, 6431-6438.
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398. Leibfarth, F.A.; Hawker, C.J., "The emerging utility of ketenes in polymer chemistry", *J. Polym. Sci., Polym. Chem.*; **2013**, *51*, 3769-3782.
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396. MacKenzie, R.C.I.; Shuttle, C.G.; Dibb, G.F.; Treat, N.; von Hauff, E.; Robb, M.J.; Hawker, C.J.; Chabynyc, M.L.; Nelson, J., "Interpreting the Density of States Extracted from Organic Solar Cells Using Transient Photocurrent Measurements", *J. Phys. Chem. C*, **2013**, *117*, 12407-12414.
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392. Krogstad, D.V.; Lynd, N.A.; Choi, S.H.; Spruell, J.M.; Hawker, C.J.; Kramer, E.J.; Tirrell, M.V., "Effects of Polymer and Salt Concentration on the Structure and Properties of Triblock Copolymer Coacervate Hydrogels", *Macromolecules*, **2013**, *46*, 1512-1518.
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390. Robb, M.J.; Ku, S.Y.; Brunetti, F.G.; Hawker, C.J. "A renaissance of color: New structures and building blocks for organic electronics", *J. Polym. Sci., Polym. Chem.*; **2013**, *51*, 1263-1271.
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383. Albertazzi, L.; Mickler, F.M.; Pavan, G.M.; Salomone, F.; Bardi, G.; Panniello, M.; Amir, E.; Kang, T.; Killops, K.L.; Brauchle, C.; Amir, R.J.; Hawker, C.J. "Enhanced Bioactivity of Internally Functionalized Cationic Dendrimers with PEG Cores", *Biomacromolecules*, **2012**, *13*, 4089-4097.
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