

Gareth H. McKinley
School of Engineering Professor of Teaching Innovation
Department of Mechanical Engineering, MIT

Education:

Ph.D. in Chemical Engineering, Massachusetts Inst. of Technology, Cambridge, MA. 1991
M. Eng. in Chemical Engineering, University of Cambridge, Cambridge, England. 1986
B.A. in Natural Sciences/Chemical Engineering, University of Cambridge, Cambridge, England, 1985

MIT Service:

17 years on the MIT faculty
2007-present School of Engineering Professor of Teaching Innovation
2008-2013 Associate Head for Research, Department of Mechanical Engineering
2005-2008 Member of Mechanical Engineering Council & Area Head (Area 1; MMEC)
2004-2009 Director, MIT Program in Polymer Science and Technology (PPST)
2001-2008 Head, Hatsopoulos Microfluids Laboratory
2001-2005 Professor of Mechanical Engineering
1997-2001 Lord Associate Professor of Mechanical Engineering

Other Related Experience:

2002 Jan-July Visiting Professor, Monash University & Distinguished Miegunyah Fellow, University of Melbourne, Melbourne Australia
1991-1995 Harvard University, Gordon McKay Assistant Professor of Engineering Sciences
1995-1997 Harvard University, John L. Loeb Associate Professor of the Natural Sciences
1996 Paul & Gabriella Rosenbaum Visiting Fellow, Isaac Newton Institute, U. Cambridge UK.

Scientific & Professional Societies:

Member, Society of Rheology (1991 – present)
Member, British Society of Rheology (1991 – 2008)
Associate Member, American Institute of Chemical Engineers (1991 – present)
Materials Research Society (2009-present)
American Society of Mechanical Engineers (2008-present)

Honors & Awards:

The Gold Medal of the *British Society of Rheology*, Dec. 2014
The Bingham Medal from the Society of Rheology, Oct. 2013
Bird, Stewart and Lightfoot (BSL) Lecturer, U.W.-Madison, May 2010
Elected Fellow, *American Physical Society—Division of Fluid Dynamics*, 2007
TA Instruments/*Society of Rheology Best Paper Award* Oct. 2007
School of Engineering Professor of Teaching Innovation, 2006
Class of 1960 Fellow, Office of the Provost, MIT, May 2005
Frenkiel Award, APS Division of Fluid Dynamics, Nov. 2002
Miegunyah Distinguished Fellow, University of Melbourne, Jan.– June 2002
Spira Award for Undergraduate Teaching, Department of Mechanical Engineering, MIT April 2000
Bose Award for Teaching Excellence, School of Engineering, MIT May 2000
Presidential Faculty Fellow, National Science Foundation, 1995-1997.
Annual Award, British Society of Rheology, 1995.

Institutional & Professional Service (last ten years):

Chair, Fluid Mechanics Programming Committee of Area 1j, A.I.Ch.E , 2004 – 2006
Symposium Organizer, XIIIth International Congress on Rheology; Seoul South Korea, August 2004
APS Division of Fluid Dynamics Publications Committee, Jan 2004 – Dec. 2007
Member of Technical Advisory Board for EPSRC Portfolio Partnership in Complex Fluids; Univ. of Wales, U.K., 2005-2008
Member-at-Large, U.S. National Committee for Theoretical and Applied Mechanics (USNC/TAM) Nov. 2007-present
Member of Executive Committee, *Society for Engineering Sciences*; June 2006 - Dec. 2008

Associate Editor, *J. Fluid Mechanics*; Jan. 2006 – Dec. 2008
Chair of Bingham Award Committee, *Society of Rheology*, 2006
Member of APS Fluid Dynamics Prize Committee; Spring 2007 - Spring 2009
Member of SES Awards Subcommittee, *Society for Engineering Science (SES)*; 2006 – 2008
Member-at-Large, U.S. *National Committee for Theoretical and Applied Mechanics (USNC/TAM)*; Nov. 2007-present
Symposium Organizer, *XIVth International Congress on Rheology*; Monterey CA, August 2008
Member of the International Advisory Committee, *Vth Pacific Rim Congress on Rheology*, Sapporo, Japan; Aug. 2010
Scientific Advisory Committee; *Biological & Pharmaceutical Complex Fluids: New Trends in Characterizing Microstructure, Interactions & Properties*; Tomar Portugal, 2012
Executive Editor, *J. Non-Newt. Fluid Mech.* Jan. 2001 – Dec. 2009.
Chair of the Metzner Award Committee, *Society of Rheology*, 2012
Symposium Organizer, *XVth International Congress on Rheology*; Lisbon, Portugal, August 2012
Editorial Boards, *Applied Rheology*; *Rheologica Acta*, *J. Rheology*, *J. Non-Newt. Fluid Mech.* Ongoing
Society of Rheology Executive Committee, Member at Large 2012 – 2013.
Vice President of the Society of Rheology, 2013 – 2015.

Synergistic/Outreach/Educational Activities

Co-Developed a yearlong integrated and interactive thermal-fluids engineering course (MIT Course #2.005/6) which is now a required core course for all ME sophomores/juniors. Awarded the school-wide *Bose Award for Teaching Excellence*, May 2000 (see also: Özer, T., Kenworthy, M., Brisson, J.G., Cravalho, E.G. and McKinley, G.H., “On Developments in Interactive Web-Based Learning Modules in a Thermal-Fluids Engineering Course”, *Int. J. Engng. Ed.*, **19**(2), (2003), 305-315; Promoted to School of Engineering Professorship in Teaching Innovation (July 2006)

Co-taught SOR Short Course on Extensional Rheology (with D.F. James, D.G. Baird), Monterey, 1997.

Co-taught an industrial short course for practicing rheologists: “Rheology Symposium” TA Instruments, New Castle DE, every May 1995-2000 inclusive.

Co-Taught Summer Professional Program in “Rheological Behavior of Polymeric Liquids” (PST102s) at MIT with Prof. R. C. Armstrong June 1995, July 1996, June 1998, July 2000.

Developed a one-hour introductory class on ‘Nanotechnology and Nanomaterials’ for 5th/6th grade students: presented in Marlborough and Acton MA school districts, May 2003.

Golden Gate Polymer Forum; 2-Day Short Course in Complex Fluids, Palo Alto, CA. June 2011.

AIP Industrial Rheology Forum, Cleveland, OH Oct. 2011.

Honorary Vice-President and Member of the Programme Working Group for the *London International Youth Science Forums (LIYSF)* from August 1994. In addition to program development, I present a biannual lecture on “Chaos and Nonlinear Dynamics” to 250 11th/12th grade students from 50 countries (see <http://www.liysf.org.uk>)

Collaborators (last 5 years)

Kyung Ahn (SNU), Manuel Alves (U. Porto), Rama Bansil (BU), Osman Basaran (Purdue), David V. Boger (University of Melbourne), Adam Burbidge (Nestlé S.A.), Robert E. Cohen (M.I.T.), R Cohn (U. Louisville), Pamela Cook (U. Delaware), Justin Cooper-White (U. Queensland), Christian Clasen (U. Leuven), Pam Cook (U. Delaware), Pat Doyle (M.I.T.), Jens Eggers (Bristol Univ), Shyam Erramilli (BU), Doug Fudge (U. Guelph), William Hartt, (P&G), Paula Hammond (M.I.T), Ole Hassager (Danish Technical University), Neville Hogan (M.I.T.), Lynn Gladden (U. Cambridge), Lorna Gibson (M.I.T.), David F. James (U. Toronto), Mike Johns (U. Cambridge), Seung-Joon Lee (SNU), Chris Macosko (Minnesota), Jason Maxey (Halliburton), David Olagunju (U. Delaware), Peter Pershan (Harvard Univ), Fernando Pinho (U. Minho), Michael Renardy (Virginia Tech), Lucy Rodd (Univ. Queensland), Tam Sridhar (Monash University), Howard Stone (Harvard Univ.), Peter Szabo (D.T.U.), Anubhav Tripathi (Brown University), Mehmet Toner (Harvard/MGH), Ken Walters (Univ. Wales), Minwu Yao (Goodyear), Manfred Wilhelm (Karlsruhe IT),

Graduate Thesis Advisors

Robert A. Brown (President, Boston Univ.), Robert C. Armstrong (Associate Director, MIT Energy Initiative & Chemical Engineering, M.I.T.).