TOBIN J. MARKS CURRICULUM VITAE

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Date and Place of Birth: November 25, 1944, Washington, D.C.
Education: B.S. University of Maryland, 1966; Ph.D. Massachusetts Institute of Technology, 1971.

Positions Held

Northwestern University
Assistant Professor of Chemistry, 1970 - 1974
Associate Professor of Chemistry, 1974 - 1978;
Professor of Chemistry, 1978-
Charles E. & Emma H. Morrison Professor of Chemistry, 1986-1999.
Professor of Materials Science and Engineering, 1987-
Vladimir N. Ipatieff Professor of Catalytic Chemistry, 1999-
Professor of Applied Physics, 2009-
Professor of Chemical and Biological Engineering, 2017-.

Texas A&M University Qatar
Distinguished Adjunct Professor of Chemistry and Physics, 2009-

Korea University
Distinguished Brain Korea 21 Visiting World Class Professor, 2011-

Hong Kong
Senior Fellow, Hong Kong Institute for Advanced Study, 2017 -

Honors and Prizes

1974 Alfred P. Sloan Fellow;
1975 Camille and Henry Dreyfus Teacher-Scholar;
1977 DuPont Young Faculty Fellow;
1978 Innovation Recognition Award, Union Carbide Corporation;
1984 American Chemical Society Arthur K. Doolittle Award in Polymeric Materials Science and Engineering;
1984 Sobral Medal, Portuguese Chemical Society;
1986 Mack Awardee and Lecturer, Ohio State University;
1989 American Chemical Society Award in Organometallic Chemistry;
1989-1990 Guggenheim Fellow;
1993 Fellow, American Academy of Arts and Sciences;
1993 Member, U.S. National Academy of Sciences;
1994 American Chemical Society Award in Inorganic Chemistry;
1997 Centenary Medal, UK Royal Society of Chemistry;
1998 Francis Clifford Phillips Award, University of Pittsburgh;
1999 Paolo Chini Award, Italian Chemical Society;
2000 Cotton Medal, American Chemical Society;
2001 American Chemical Society Award in the Chemistry of Materials;
2001 Burwell Award, North American Catalysis Society;
2001 Willard Gibbs Medal, American Chemical Society,
2001 Linus Pauling Medal, American Chemical Society;
2002 American Institute of Chemists Gold Medal;
2003 Karl Ziegler Prize, Gesellschaft Deutscher Chemiker;
2003 Evans Medal, Ohio State University;
2004 Sir Edward Frankland Medal, UK Royal Society of Chemistry;

2005 University of Maryland Alumni Hall of Fame;
2005 Fellow, Royal Society of Chemistry UK;
2005 John Bailar Medal, University of Illinois and the American Chemical Society;
2005 Member, Leopoldina German National Academy of Natural Sciences;
2005 U.S. National Medal of Science;
2008 American Chemical Society Award for Distinguished Service in the Advancement of Inorganic Chemistry;
2008 Principe de Asturias Prize for Technical and Scientific Research (Spain);
2009 Honorary Fellow, Chemical Research Society of India;
2009 Fellow, Materials Research Society;
2009 Herman Pines Award, North American Catalysis Society;
2009 Nelson W. Taylor Award in Materials Research, Penn. State University;
2009 Materials Research Society von Hippel Award;
2010 William H. Nichols Medal, American Chemical Society;
2010 Distinguished Affiliated Professor Award, Technical University of Munich;
2010 Wilhelm Manchot Prize, Technical University of Munich;
2010 Centennial Medal, University of Oviedo (Spain);
2010 Mosher Award, American Chemical Society, Santa Clara/Silicon Valley, California Section;
2011 Schulich Prize, Technion-Israel Institute of Technology;
2011 American Chemical Society Arthur Cope Senior Scholar Award in Organic Chemistry;
2011 Honorary Fellow, Indian National Academy of Sciences;
2011 Dreyfus Prize in the Chemical Sciences;
2012 Theodore W. Richards Medal, American Chemical Society;
2012 U.S. National Academy of Sciences Award in the Chemical Sciences;
2012 Member, U.S. National Academy of Engineering;
2012 Distinguished Alumni Award and Election, Circle of Discovery, University of Maryland;
2012 American Chemical Society Somorjai Award for Creative Research in Catalysis;
2013 Honorary Member, Israel Chemical Society
2013 Alan G. MacDiarmid Medal, University of Pennsylvania
2014 Sir Geoffrey Wilkinson Medal, UK Royal Society of Chemistry
2015 Luigi Sacconi Medal, Italian Chemical Society
2015 UK Royal Society of Chemistry Award for Industrial Materials
2015 Honorary Foreign Fellow, Chinese Chemical Society
2016 Chinese Academy of Sciences President's International Distinguished Scientist (Einstein) Award
2016 Member, U.S. National Academy of Inventors
2016 Tannas Award in Materials Science, University of California, Los Angeles
2016 Eminent Scientist Award, American Chemical Society Undergraduate Program
2016 Honorary Professor, Chinese Academy of Sciences, Dalian Institute of Chemical Physics
2017 American Chemical Society Priestley Medal
2017 Johnson Award and Lectureship in Materials Science, Cornell University
2017 Harvey Prize in Science and Technology, Harvey Foundation, Israel (awarded in 2018)
2018 Lee Fong Award and Lectureship, National Taiwan University
2018 CPSE Award and Lectureship, First National Meeting of the Swedish Chemical Society
2018 Foreign Member, Accademia Nazionale dei Lincei (Italian National Academy of Sciences)
2018 Clarivate Analytics Citation Laureate
2019 President's Honorary Professor, Nanjing Technical University
2019 President's Honorary Professor, Northwestern Polytechnical University (China)
2019 Foreign Member, European Academy of Sciences

Honorary Doctorates, Doctor of Science *Honoris Causa*

2011 Hong Kong University of Science and Technology
2011 University of South Carolina
2012 The Ohio State University
2016 Technical University of Munich

Distinguished Named Lectureships/Visiting Professorships
Distinguished Visiting Lecturer, University of Texas at Austin, 1980;
Presidential Lecturer, Technical University of Berlin, 1980;
Distinguished Visiting Professor, University of Western Ontario, 1981;
Lemieux Lecturer, University of Ottawa, 1984;
Reilly Lecturer, University of Notre Dame, 1984-1985;
Distinguished Visiting Professor, University of Hawaii, 1986;
Asher Visiting Professor, Technion, Israel, 1986;
SACS Lecturer, University of South Carolina, 1986;
Phi Lambda Upsilon Lecturer, University of Nebraska, 1986-1987;
Boomer Lecturer, University of Alberta, 1987;
Merck-Frosst Lecturer, University of British Columbia, 1987;
Tables Rondes Roussel-Uclaf Lecturer, Paris, 1987;
Kolthoff Lecturer, University of Minnesota, 1988;
ESSO Lecturer, University of Toronto, 1988;
Frontiers in Chemistry Lecturer, Texas A&M University, 1988;
Graduiertenkolleg Lecturer, Technical U./Free University of Berlin, 1989;
Roberts Lecturer, Grinnell College, 1990;
University Lecturer, Boston College, 1990;
Dow Lecturer, Michigan State U., 1990;
RIKEN Frontier Research Program Visiting Scientist (Japan), 1991;
Gordon Lecturer, University of Toronto, 1992;
National Science Council of Taiwan Lecturer, 1992;
Distinguished Visiting Lecturer, University of Florida, 1992;
Karcher Lecturer, University of Oklahoma, 1993;
Hill Lecturer, Duke University, 1993;
Purves Lecturer, McGill University, 1993;
ICI Distinguished Lecturer, University of Calgary, 1993;
W.R. Grace Lecturer, University of Maryland, 1994;
E.F. Smith Lecturer, University of Pennsylvania, 1994;
Japan Society of Organic Chemistry Lectureship, 1994;
Stieglitz Lecturer, University of Chicago - Chicago ACS Section, 1994;
Gooch-Stephens Lecturer, Baylor University, 1995;
Lind Lecturer, University of Tennessee - Oak Ridge Nat. Lab., 1995;
Fishel Lecturer, Vanderbilt University, 1995;
Musher Lecturer, Hebrew University of Jerusalem, 1996;
H.C. Brown Lecturer, Purdue University, 1996;
Xerox of Canada Distinguished Lecturer (University of British Columbia; Victoria U.), 1996;
Kilpatrick Lecturer, Illinois Institute of Technology, 1996;
Siedle Lecturer, Indiana University, 1997;
Seaborg Lecturer, University of California Berkeley, 1998;
Closs Lecturer, University of Chicago, 1998;
Abbott Lecturer, University of North Dakota, 1999;
Marcus Lecturer, Washington University, 1999;
Convention Intercantonale Romande Lecturer, Switzerland, 1999;

McElvain Lecturer, University of Wisconsin, 2000;
Renowned International Visiting Scholar, Hong Kong Polytechnical University, 2001;
Bigeleisen Lecturer, SUNY Stony Brook, 2002;
Arthur D. Little Lecturer, MIT, 2003;
Walton Lecturer, Purdue University, 2003;
Milkovich Lecturer, University of Akron, 2003;
H.B. Jonassen Lecturer, Tulane U., 2004;
University Pierre et Marie Curie Institut Universitaire de France Professor, 2005;
Alumni Distinguished Lecturer, Michigan State University, 2005;
H.M. Friedman Lecturer, Rutgers University, 2005;
Otto M. Smith Lecturer, Oklahoma State University, 2005;
Abbott Lecturer, Montana State University, 2005;
Gomberg Lecturer, University of Michigan, 2006;
Jortner Lecturer, Tel Aviv University 2006;
Boulder Scientific Lecturer, Colorado State U, 2007;
Davis Lecturer, University of South Carolina, 2008;
Butler Lecturer, University of Florida, 2008;
Whelan Lecturer, University Texas El Paso, 2008;
MacLean Lecturer, McMaster University 2008;
Crano Lecturer, University of Akron, 2008;
Frontiers in Chemistry Lecturer, Wayne State U., 2009;
Dawson Lecturer, University of Kentucky, 2009;
Chevron-Phillips Lecturer, Virignia Tech., 2009;
Director's Distinguished Lecturer, U.S. National Science Foundation, 2009;
Su Lecturer, University of Rochester, 2009;
First International Materials Science Lecturer, International Centre for Materials Science, Jawaharlal Nehru Center Bangalore, India, 2009;
First Semana de la Ciencia y la Innovation Plenary Lecturer, Mexico City, 2009;
Kilpatrick Lecturer, Illinois Institute of Technology, 2010;
Abelson Lecturer, Washington State University, 2010;
Second Semana de la Ciencia y la Innovation Plenary Lecturer, Mexico City, 2010;
Jones Lecturer, Queens University (Ontario), 2010;
Schaeffer Lecturer, University of New Mexico, 2010;
Distinguished Visiting Professor, Weizmann Institute of Science, 2011;
Shore Lecturer, Ohio State University, 2011;
G.F. Lipscomb Lecturer, University South Carolina, 2011;
Distinguished International Lecturer, Institute for Advanced Study, Hong Kong University of Science and Technology, 2011;
Karcher-Barton Lecturer, University of Oklahoma, 2012;
Johnson Lecturer, Stanford University, 2012;
Inaugural 3MET Lecturer, University of Kaiserslautern, 2012;
Bayer Lecturer, Cornell University, 2013;
Bayer Lecturer, University of Pittsburgh 2013;
Rausch Lecturer, University of Massachusetts, Amherst, 2014;
Xingda Lecturer, Peking University, 2014;
Frontiers in Molecular Sciences Lecturer/Professor, Chinese Academy of Sciences, 2014;
Distinguished Clean Energy Lecturer, University of Washington, 2014;
King Lecturer, University of Georgia, 2014;
Texas Distinguished Faculty Lectureship, University of Texas, Austin, 2015;
Bergman Lecturer, University of California, Berkeley, 2015;

Eyring Lecturer, Arizona State University, 2015;
Annual Center for Plastic Electronics Lecturer, Imperial College London, 2015;
Stone Lecturer, University of Bristol, UK, 2015;
Oryx Lecturer, Texas A&M Qatar, 2016;
Munib and Angela Masri Distinguished Lecturer, American University of Beirut, 2016;
ECS Distinguished Faculty Lecturer, University of Texas Dallas, 2016;
Science at the Cutting Edge Lecturer, Michigan State University, 2016;
McElvain Academic Lecturer, University of Wisconsin Madison, 2016;
Zhang Dayu Lecturer, Chinese Academy of Sciences Institute of Chemical Physics, 2016;
Parry Lecturer, University of Utah, 2017.
Inaugural Sigma-Aldrich Lecturer in Materials Chemistry, University of California Santa Barbara, 2017;
Dow Distinguished Lecturer, Stanford University, 2018;
Davis Distinguished Lecturer, North Carolina State University, 2018;
Arduengo Distinguished Lecturer, University of Alabama, 2018;
COPE Distinguished Lecturer, Georgia Institute of Technology, 2018;
Annual Lecturer, Grubbs Center for Polymers & Catalysis, Gwangju Inst. of Science and Technology, 2018.
Institute of Advanced Materials Sparkling Lecture, Nanjing Institute of Technology, 2019
Julia and Edward Lee Memorial Lectures, University of Chicago, 2020

Publications in Peer-Reviewed Journals, 1,355

ISI h-index, 155 (on 95,315 citations)

Google Scholar h-index, 170 (on 127,161 citations)

US Patents, 272

Companies Founded: Polyera Inc. in Skokie IL (Headquarter Laboratory) and Jubei Taiwan (Applications Center); currently 45 employees. Name changed to Flexterra Inc. in 2017 to better reflect product orientation.

Current or Past Editorial and Academic Advisory Board Memberships
Journal of Inorganic and Nuclear Chemistry; Inorganic Syntheses; Organometallics; Inorganica Chimica Acta; Polyhedron; Polymer; Progress in Inorganic Chemistry; Chemical Communications; Accounts of Chemical Research; Journal of Molecular Catalysis; Topics in Organometallic Chemistry; Catalysis Letters; Actinide and Lanthanide Reviewer for Annual Surveys of Organometallic Chemistry; Topics in Catalysis; Nouveau Journal de Chimie/New Journal of Chemistry; Chemistry of Materials; Advanced Materials, CVD; Oxford Monographs on the Physics and Chemistry of Materials; Crystal Engineering Communications; Proceedings of the National Academy of Sciences; MRS Communications; Organic Photonics and Photovoltaics; Journal of Organometallic Chemistry; Science China Chemistry.

Governing Council, Gordon Research Conferences;

External Advisory Committee, Beckman Institute, University of Illinois;

Current or Past Corporate Private Sector Activities
Founded/Co-founded – Polyera Inc., Flexterra Inc.

Scientific Advisory Boards – *Conductimer Inc.; Nanovation Technologies Inc.;*

Technical Advisory Boards - *Dow Corning; Dow Chemical*; *Ophthonix, Inc.; OrganicID, Inc.; Precursor Energetics Inc.; Dynamic Connections Inc.; ASySET Inc.*

Research Interests
Transition metal and f-element organometallic chemistry; catalysis; vibrational spectroscopy; nuclear magnetic

resonance; synthetic facsimiles of metalloprotein active sites; carcinostatic metal complexes; solid state chemistry and low-dimensional molecular metals; nonlinear optical materials; polymer chemistry; tetrahydroborate coordination chemistry; macrocycle coordination chemistry; laser-induced chemistry and isotope separation; molecular electro-optics; metal-organic chemical vapor deposition; polymerization catalysis; printed flexible electronics; solar energy; transparent conductors.

Professional Societies

American Chemical Society; Society for Applied Spectroscopy; International Society for Magnetic Resonance; Materials Research Society; Sigma Xi; Phi Beta Kappa; American Association for the Advancement of Science; U.S. National Academy of Sciences; American Academy of Arts and Sciences; German National Academy of Natural Sciences; U.S. National Academy of Engineering; U.S. National Academy of Inventors; Royal Society of Chemistry (UK); Chemical Research Society of India, Indian National Academy of Sciences; Israel Chemical Society, Honorary Member; Chinese Chemical Society, Honorary Foreign Member; Italian National Academy of Sciences

Professional Service

Minuteman, Chicago ACS section, 9/71-2000.
Organizer, Inorganic Chemistry Symposia, Great Lakes Regional ACS Meeting, 6/76.
Symposium Planning Committee, Inorganic Chemistry Division, ACS, 6/77-6/78.
Director, NATO Advanced Study Institute, "Organometallics of the f-Elements", SOGESTA Conference Center, Urbino, Italy, 1978.
Principal Organizer, NSF National Organometallic Chemistry Workshop, 1980-1982.
Councillor, Inorganic Chemistry Division, ACS, 1/80-12/85.
Member, National Research Council Solid State Sciences Advisory Panel, 1980-1985.
Organizer, Lanthanide and Actinide Symposium, 28th IUPAC Congress, Vancouver, 1981.
American Chemical Society Tour Speaker, 1981.
Organizer, Organometallics of the f-Elements Symposium, 15th Rare Earth Research Conference, Rolla, 1981.
Organizing Committee, Second China-Japan-U.S.A. Inorganic and Organometallic Chemistry Conference, Shanghai, 1982.
Steering Committee, Gordon Research Conference on Organometallic Chemistry, 1982.
Steering Committee, First International Conference on the Chemistry and Technology of the Lanthanides and Actinides, Venice, 1983.
Director, NATO Advanced Study Institute, "Fundamental and Technological Aspects of Organo-f- Element Chemistry," Maratea, Italy, 1984.
Oversight Review Team, NSF Chemistry Division, 1982.
ACS Publications Committee, 1983-1985.
Steering Committee, Second International Conference on the Chemistry and Technology of the Lanthanides and Actinides, Lisbon, 1987.
Committee on ONR Chemical Sciences Research Planning, 1985-1988.
Task Force, ACS Materials Chemistry Journal, 1986.
Organizing Committee, NSF Workshop on Materials Preparation Facilities, 1987.
Organizing Committee, International Conference on Synthetic Metals '88.
Chairman, Gordon Research Conference on Inorganic Chemistry, 1989.
Editor, Polyhedron symposium-in-print, "Metal-Ligand Bonding Energetics in Organotransition Metal Compounds",1988.
Organizer, "Bond Energies and the Thermodynamics of Organometallic Reactions" Symposium, Fall ACS National Meeting, Miami, 1989.
Organizing Committee, Sixth International Symposium on "Relations Between Homogeneous and

Heterogeneous Catalysis," Pisa, 1989.
Senior Scientist Appointments Committee, Chemistry Division, Argonne National Laboratory, 1988-1992.
Instrumentation Advisory Committee, Hong Kong University of Science and Technology, 1989.
National Science Foundation Chemistry Advisory Committee, 1990-1992.
Organizer, First International Workshop on MOCVD of High-T_c Superconductors and Related Materials, Evanston, 1992.
Local Organizer, First NSF Joint U.S.-Russian Inorganic/Organometallic Chemistry Workshop, Evanston, 1993.
Organizer, Second International Workshop on MOCVD of High-T_c Superconductors and Related Materials, Tiburon, 1994.
American Chemical Society Willard Gibbs Medal Jury, 1994-2000; 2009-2012.
Co-Organizer, Third International Workshop on MOCVD of High-T_c Superconductors and Related Materials, Strasbourg, 1996.
U.S. Department of Energy-Basic Energy Sciences Council on Chemical Sciences, 1996-2001; Chair, 1999-2001.
Task Force, ACS Review of *Inorganic Chemistry*, 1996-1997.
Organizing Committee, NSF Solid State Chemistry and Materials Workshop, 1998.
Committee of Visitors Review Team, NSF Chemistry Division, 1998
Editor Search Committee, *Organic Letters*, 1998.
Technology Vision 2020 Catalysis Report Team, ACS, CMA, AICHE, CCR, SOCMA.
Organizer, U.S. Department of Energy-Basic Energy Sciences International Workshop on Opportunities for Catalysis in Carbon Management, Santa Fe, 1999.
National Research Council Board on Chemical Sciences and Technology, 2000-2003.
Editor Search Committee, ACS journal *Inorganic Chemistry*, 2000.
Co-Organizer, National Academy of Sciences/National Research Council Workshop "Carbon Management: Implications for R&D in the Chemical Sciences," December 2000.
Assessment Panel, University Grants Committee, Hong Kong, 2001.
ACS Task Force on Guidelines for Editor Search Committees.
Organizing Committee for Materials and Manufacturing Workshop, National Research Council Committee on Challenges for the Chemical Sciences in the 21st Century, Washington, June 2001.
Lecturer, ACS Short Course on Inorganic Polymers, 1987-2003.
Editor Search Committee, ACS journal *Journal of Organic Chemistry*, 2001.
Organizer, U.S. Department of Energy-Basic Energy Sciences Workshop "Frontiers in Homogeneous Catalysis", O'Hare, Sept. 2002.
Organizer, 11th International Symposium on Relations Between Homogeneous and Heterogeneous Catalysis, Evanston, July 2003.
Assessment Panel, University Grants Committee, Hong Kong, 2004.
Review Committee Chair, Lawrence Berkeley National Laboratory, Feb. 2005.
Co-Organizer, ACS-IEEE-MRS Symposium on Organic Microelectronics, Newport, Rhode Island, 2005.
Coauthor, NAS-NRC Report, *International Chemical Research Benchmarking*, 2007
Co-Organizer, International Conferences on Transparent Conducting Oxides, Heriklon, 2006, 2008, 2010.
Co-author, U.S. Department of Energy-Basic Energy Sciences Report, *Directing Matter and Energy: Five Challenges for Science and the Imagination*, 2008.
Co-author, ONR/NSF report, *Hybrid Flexible Electronics Research in Europe*, 2009
Review Committee, Lawrence Berkeley National Laboratory, March 2010.
Co-author & NSF Coordinator, Five-Nation "Chemical Sciences and Society Symposium" report, *Chemistry for a Sustainable Global Society*, RSC Publications, 2010.
Council on Higher Education Review Committee on Israeli Chemistry Curricula, 2011-2012.

Selection Committee, NAS Award for Initiatives in Research (Young Scientist Award), 2012
Co-author, NSF-ONR report *Organic Photovoltaics-Current Status and Opportunities*, 2013.
Co-Chair, Vice Chair, Gordon Research Conferences on Hybrid Electronic and Photonic Materials and Phenomena, Hong Kong, 2014, 2016
NSF Chemistry Division Director Search Committees, 2015, 2018