

David H. Gay

Director of Technology, Institute for Collaborative Biotechnologies
Adjunct Professor, Department of Chemical Engineering
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EDUCATION

Ph.D., Chemical Engineering, University of Wisconsin	1989
B.S., Chemical Engineering, Rice University	1983

ACADEMIC EXPERIENCE

Director of Technology Institute for Collaborative Biotechnologies University of California, Santa Barbara	2004–present
Adjunct Professor Department of Chemical Engineering University of California, Santa Barbara	2004–present

INDUSTRIAL EXPERIENCE

Technology Manager INVISTA Incorporated R&D Benger Laboratory, Waynesboro, Virginia	2003–2004
Technology Group Manager DuPont Textiles & Interiors R&D Benger Laboratory, Waynesboro, Virginia	2000–2003
Technology Group Leader DuPont Lycra® R&D Benger Laboratory, Waynesboro, Virginia	1998–2000
Senior Research Engineer DuPont Lycra® R&D Benger Laboratory, Waynesboro, Virginia	1996–1998
Senior Research Engineer DuPont Central R&D European Technical Centre, Geneva, Switzerland	1993–1996
Research Engineer DuPont Polymers R&D Experimental Station, Wilmington, Delaware	1989–1993

ACADEMIC-INDUSTRIAL RESEARCH MANAGEMENT

Institute for Collaborative Biotechnologies 2004-present
Army Research Office sponsored University Affiliated Research Center.
\$8.4 million annual budget for basic and applied research. Coordinates University-Industry partnerships and directs ICB-Industry-Army applied research program.

INDUSTRIAL RESEARCH MANAGEMENT

INVISTA Process Modeling & Control Center 2003-2004
\$4.6 million annual budget, 13 Principal Investigators
Managed programs in Virginia, Delaware, Texas, Tennessee and Ontario

LDZ JV (China) Product & Process Improvement Team 2002-2003
\$2.8 million annual budget, 12 Principal Investigators
Directed interdisciplinary team through complex technology development, prototyping and scale-up project for Chinese joint-venture partner.

D12 JV (Singapore) Product & Market Development Team 2000-2001
\$2.1-3.5 million annual budget, 6-10 Principal Investigators
Coordinated product development programs between DuPont CR&D and Lycra® R&D and scale-up to Singapore Market Development Facility

Dupont Lycra® R&D Operations Technology Group 1998-2003
\$1.5-3.0 million annual budget, 5-10 Principal Investigators
Led development team in Virginia and coordinated technology transfer to sites in Northern Ireland, Netherlands, Brazil, Mexico, Singapore and Shanghai

INDUSTRIAL CONTRACT RESEARCH

National Chemical Laboratory, Pune, India 2003-2004
\$50-125,000 annual budget, 1-2 Principal Investigators
Acted as customer under Intellectual Property Agreement

LDZ Spandex Company, Lianyungang, China 2002-2003
\$2.8 million annual budget, 12 Principal Investigators
Acted as supplier under Intellectual Property Agreement

PROCESS SYSTEMS RESEARCH

Design of Control Systems
Lycra® Polymer Process 1996-1998
Elvanol® Polymer Process 1991-1992
Distributed Parameter Systems (thesis research) 1984-1989

Modeling of Dynamic Systems
Lycra® Polymer Process (polyurethane-urea) 1995-1997
Nylon Polymer Process (polyamide) 1993-1995
Elvanol® Polymer Process (co-polyacrylate) 1989-1990
Distributed Parameter Systems (thesis research) 1984-1989

ACADEMIC-INDUSTRIAL RESEARCH CONSORTIA

UCSB/UMass Process Design & Control Consortium Represented INVISTA Incorporated	2003-2004
Imperial College Process Systems Engineering Consortium Represented DuPont Polymers (USA) and DuPont CR&D (Europe)	1991-1996
Wisconsin Polymerization Reaction Engineering Laboratory Represented Wisconsin (1984-1989) and DuPont Polymers (1990-1992)	1984-1992

ACADEMIC-INDUSTRIAL CONFERENCES

ICB Army-Industry Collaboration Conference Conference Chairman	2005
AIChE Annual Meetings 2005 Session Vice-Chair, Process Control Applications 2003 Invited Presentation, Polymerization Process Control 1998 Session Co-Chair, State and Parameter Estimation	2005, 2003, 1998
PSE '97-ESCAPE-7, Trondheim, Norway 6 th International Symposium on Process Systems Engineering, 30 th European Symposium on Computer-Aided Process Engineering Member of International Program Committee (Modeling and Simulation)	1997
DYCORD-95, Helsingor, Denmark 4th International Federation of Automatic Control Symposium on Dynamics and Control of Chemical Reactors, Distillation Columns and Batch Processes Member of International Program Committee (Chemical Reactors)	1995

HONORS AND AWARDS

DuPont Engineering Excellence Award Lycra® Polymerization Process Control System	1999
DuPont Engineering Excellence Award Elvanol® Polymerization Process Control System	1993
Wisconsin Alumni Research Foundation Fellowship	1986-1987
National Science Foundation Graduate Fellowship <i>magna cum laude</i> , Rice University	1983-1986 1983
Phi Beta Kappa	1983
Tau Beta Pi	1983
Moody Foundation Engineering Scholarship	1979-1983
National Merit Foundation Scholarship	1979-1983

PUBLICATIONS

Gay, D. H. and Ray, W.H., "Identification and Control of Distributed Parameter Systems by means of the Singular Value Decomposition", *Chemical Engineering Science*, **50**, 1519-1539, 1995.

Gay, D. H., "Identification and Control of Distributed Parameter Systems by means of the Singular Value Decomposition", Ph.D. thesis, University of Wisconsin, Madison, 1989.

Gay, D. H. and Ray, W. H., "Application of Singular Value Methods for Identification and Model-based Control of Distributed Parameter Systems", *Proceedings of the 1988 IFAC Workshop on Model Based Process Control*, Atlanta, June 1988.

Gay, D. H. and Ray, W. H., "Identification and Control of Linear Distributed Parameter Systems through the use of Experimentally Determined Singular Functions", *Control of Distributed Parameter Systems, Proceedings of the 4th IFAC Symposium*, Los Angeles, 1986.

PRESENTATIONS

Gay, D. H., "The Institute for Collaborative Biotechnologies", Invited presentation at Army Center for Applied Biotechnology Industry Day, Johns Hopkins University Applied Physics Laboratory, May 2005.

Gay, D. H., "ICB: Opportunities for Collaboration", Invited presentation at Intelligent Optical Systems, Torrance, California, May 2005.

Gay, D. H., "ICB Industrial Partnership Program", Invited presentation at ICB Army-Industry Collaboration Conference, Santa Barbara, April 2005.

Gay, D. H., "The Institute for Collaborative Biotechnologies", Invited presentation to MITRE Corporation, McLean, Virginia, January 2005.

Gay, D. H., "Industrial Polymerization Process Control: Opportunities & Challenges", Invited presentation at AIChE Annual Meeting, San Francisco, November 2003.

Gay, D. H. and Ray, W. H., "Practical process control of distributed parameter systems", Contributed Presentation at AIChE Annual Meeting, Miami Beach, November 1986.