

National Academy of Engineering

October 2, 2021

CLASS OF 2021

Members and
International Members



CLASS OF 2021 MEMBERS

In February 2021 the members of the NAE elected 104 new members and 24 new international members. Election to the NAE is one of the highest professional distinctions conferred on engineers. The main criteria for membership in the National Academy of Engineering are outstanding personal contributions and accomplishments in one or both of the following categories:

1. Engineering research, practice, or education, including, where appropriate, significant contributions to the engineering literature.
2. Pioneering of new and developing fields of technology, making major advancements in traditional fields of engineering, or developing/implementing innovative approaches to engineering education, or providing engineering leadership of major endeavors.

The following pages feature the names, photographs, and election citations of each newly elected member and foreign member. The numbers following their names denote primary and secondary NAE section affiliations.



Dr. Russell J. Allgor (8, 3)

Chief Scientist
Amazon

For application of operations engineering to design and improve logistics and fulfillment systems for ecommerce.



Dr. Santokh S. Badesha (12, 9)

Corporate Fellow & Manager Open Innovation
Xerox Corporation

For developing materials enabling the broad use of laser printing and the creation of color laser printing.



Dr. Barry Arkles (9, 3)

Chairperson and CEO
Gelest Inc.

For contributions to organosilicon materials and organometallic and biochemical reagents.



Dr. James L. Barnard (4)

Global Practice and Technology Leader
Black & Veatch, Engineers-Architects

For the development and implementation of biological nutrient removal in water treatment.



Mr. James R. Arnold (11)

Principal
Taproot Construction, LLC

For commercial application of processes for gold and silver recovery and implementation of advanced environmental controls.



Dr. Luiz Andre Barroso (5)

Vice President and Google Fellow
Google, Inc.

For contributions to the architecture, design, and performance of energy-efficient warehouse-scale computing.



Dr. John G. Aunins (2)

Senior Advisor Bioprocess and Manufacturing
Seres Therapeutics, Inc.

For advances in bioprocess engineering, the introduction of new vaccines and development of microbiomebased products.



Dr. James G. Bellingham (12, 11)

Executive Director
Institute for Assured Autonomy
Johns Hopkins University

For design, development, and deployment of autonomous underwater vehicles to advance understanding of the ocean and its resources.

CLASS OF 2021 MEMBERS

Dr. David Bem (3, 9)

Chief Technology Officer and Vice President of Science & Technology
PPG Industries, Inc.

For business leadership and a sustained record of materials discovery to commercialization.

**Dr. Zoltan J. Cendes (7)**

Adjunct Professor
Carnegie Mellon University

For contributions to theory, development, and commercialization of electromagnetics simulation software.

**Prof. Christopher N. Bowman (3, 2)**

James and Catherine Patten Endowed Chair and Distinguished Professor
University of Colorado Boulder

For development of photopolymerization reactions for adaptable polymer networks and their innovative applications.

**Ms. Lili Cheng (5)**

Corporate Vice President Conversation AI
Microsoft Corporation

For scientific and industrial leadership in user interface design, social computing, and computing education.

**Dr. Julia J. Brown (7)**

Senior Vice President and Chief Technology Officer
Universal Display Corporation

For contributions to materials and device technologies for phosphorescent light emitting diode displays, and their commercialization.

**Professor James E. Colgate (10, 5)**

Breed University Professor of Design
Mechanical Engineering
Northwestern University

For development of haptic interface technologies, including surface haptics for touchscreens.

**Dr. Christopher B. Burke (4)**

Chief Executive Officer
Christopher B. Burke Engineering, Ltd.

For leadership in executing complex water resources projects and service to the engineering community.

**Dr. Lance R. Collins (10, 3)**

Vice President and Executive Director of the Innovation Campus
Virginia Tech

For contributions to understanding turbulent processes, leadership in engineering, and contributions to the diversity of the profession.

**Mr. Carlos A. Cabrera (3, 2)**

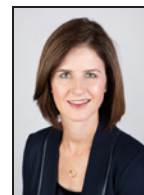
Executive Chairman
Genomatica, Inc.

For leadership in developing and commercializing widely adopted processes for fuels and intermediate chemicals.

**Dr. Catherine F. Corrigan (2)**

Chief Executive Officer and President
Exponent, Inc.

For elucidation of injury mechanisms and mitigation, and leadership in biomechanical engineering and scientific consulting.



CLASS OF 2021 MEMBERS



Mr. Erroll B. Davis, Jr. (6)

Board Member
Atlanta Public Schools

For leadership in research and development of renewable resources integration with the grid, and public education.



Dr. William T. Freeman (5)

Principal Scientist
Google, Inc.

For contributions to computer vision and image enhancement.



Professor Peter J. Delfyett, Jr. (7)

Pegasus Professor & University Trustee Chair
University of Central Florida

For contributions to development and commercialization of low-noise, high-power ultrafast semiconductor lasers.



Professor Andrés J. García (2)

Regent's Professor Woodruff School of
Mechanical Engineering
Georgia Institute of Technology

For contributions to molecular engineering of biomaterial surfaces and cell adhesion force technology to characterize stem and cancer cells.



Professor Jonathan S. Dordick (2, 3)

Institute Professor
Rensselaer Polytechnic Institute

For contributions to methods for rapidly screening drug efficacy and toxicity, and biocatalytic technologies for improving human health.



Mr. Gary J. Goldberg (11)

Director
BHP Group Limited

For promoting safety, sustainability, inclusion, value, ethics, and responsibility in the mining industry.



Professor Francis J. Doyle, III (2, 3)

John A. & Elizabeth S. Armstrong Professor and
Paulson Dean, Engineering & Applied Sciences
Harvard University

For insights into natural biological control systems and innovative engineering of diabetes control devices.



Dr. Charles N. Haas (4, 12)

LD Betz Professor of Environmental Engineering
Drexel University

For contributions to quantitative microbial risk assessment for drinking water quality and public health.



Professor Frederick Dryer (10, 1)

Professor
Mechanical Engineering and Aeronautical
Engineering
University of South Carolina

For contributions to understanding of combustion processes for propulsion and transportation applications and for fire safety.



Dr. Craig J. Hawker (9)

Director of the California NanoSystems Institute
Director of Dow Materials Institute
University of California, Santa Barbara

For contributions to polymer chemistry through synthetic organic chemistry concepts and the advancement of molecular engineering principles.

CLASS OF 2021 MEMBERS

Mr. Nick Hazen (11, 3)

President & CEO
Hazen Research, Inc.

For leadership in the commercial development of hydrometallurgical processes for recovering metals from ores.

**Dr. Patricia N. Hurter (3)**

Chief Executive Officer and President
Lyndra Therapeutics

For leadership in formulation technologies, amorphous dispersions, and continuous processing for hepatitis C and cystic fibrosis treatments.

**Professor Mary C. Hill (11, 12)**

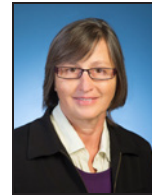
Professor of Geology
University of Kansas

For contributions to development and application of methods for parameter estimation and sensitivity analysis in hydrologic models.

**Professor Marija D. Ilic (6)**

Senior Research Scientist Laboratory for
Information and Decision Systems
Massachusetts Institute of Technology

For contributions to electric power system analysis and control.

**Professor William W. Hogan (8)**

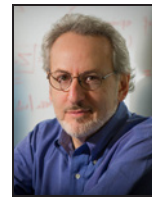
Raymond Plank Professor of Global Energy
Policy
Harvard University

For contributions to electricity industry restructuring, electricity market design, and energy policy modeling and analysis.

**Dr. Donald E. Ingber (2)**

Founding Director Judah Folkman Professor of
Vascular Biology
Harvard University

For interdisciplinary contributions to mechanobiology and microsystems engineering, and leadership in biologically inspired engineering.

**Professor Jonathan P. How (1, 5)**

Richard Cockburn Maclaurin Professor
Massachusetts Institute of Technology

For contributions to decision making and control of intelligent autonomous aerospace vehicles.

**Dr. Kathryn J. Jackson (6, 12)**

Owner
Dr. Kathryn Jackson, LLC

For contributions to management of large-scale power system technology, and harmonization of engineering solutions with public policy.

**Dr. Hao Huang (6, 1)**

Technology Chief (Retired)
General Electric Aviation

For contributions to advances in electric machines and power electronics technologies for aerospace electrical systems.

**Dr. Christopher T. Jones (1)**

Chief of Operations
The Leadership Compass

For leadership of defense logistics, sustainment, training, and system readiness in support of US national security.



CLASS OF 2021 MEMBERS



Dr. Zakya H. Kafafi (9, 7)

Distinguished Research Fellow Electrical and Computer Engineering
Lehigh University

For contributions to materials technologies for organic optoelectronics.



Dr. Witold F. Krajewski (12, 4)

Rose & Joseph Summers Chair in Water Resources Engineering
The University of Iowa

For advances in flood prediction and mitigation.



Professor David L. Kaplan (2)

Stern Family Professor of Engineering and Distinguished University Professor
Tufts University

For contributions to silk-based materials for tissue engineering and regenerative medicine.



Mr. Roger A. Krone (1, 7)

Chairman and Chief Executive Officer
Leidos, Inc.

For technical leadership in industry engineering and advances in aerospace and information technology programs.



Ms. Terri L. Kelly (12)

Director
United Rentals

For leadership in product development and commercialization by advancing management practices that foster innovation.



Dr. Rajiv Laroia (7)

Co-Founder & CTO
Light Labs

For contributions to adaptive multiuser orthogonal frequency division multiplexing for cellular voice and data systems.



Dr. Thomas F. Kelly (9)

Founder, President and CEO
Steam Instruments, Inc.

For design and commercialization of the local electrode atom probe to yield 3D atomic-scale analysis of materials.



Ms. Shelley K. Lavender (1)

Retired Sr. Vice President, Strike, Surveillance and Mobility, Boeing Defense, Space, and Security
The Boeing Company

For contributions to technological advances of military aircraft platforms and systems.



Dr. Anne S. Kiremidjian (4, 12)

C. L. Peck, Class of 1906 Professor
School of Engineering
Stanford University

For research and dissemination of probabilistic seismic hazard methods and mentoring.



Mr. B. Gentry Lee (1)

Chief Engineer for Solar System Exploration
Planetary Flight Systems Directorate
Jet Propulsion Laboratory

For contributions to 20 planetary exploration missions to Mars, Jupiter, asteroids, and comets.

CLASS OF 2021 MEMBERS

Dr. Claire Leon (1, 12)

Owner
Claire Leon Consulting, LLC

For technical and engineering management of national security space systems.

**Dr. Josh Makower (2, 10)**

General Partner
New Enterprise Associates

For inventing balloon sinuplasty, and for leading the commercialization of this and multiple other innovations.

**Dr. Frances E. Lockwood (10)**

Chief Technology Officer
Valvoline

For contributions and leadership in the development of sustainable lubricants in automotive and industrial applications.

**Mr. James O. Malley (4)**

Group Director and Senior Principal
Degenkolb Engineers

For leadership in improving seismic design.

**Dr. Azad M. Madni (12, 8)**

Chief Executive Officer & Chief Technology Officer
Intelligent Systems Technology, Inc.

For advances in low-cost simulation-based training using interdisciplinary model-based approaches.

**Dr. Louis A. Martin-Vega (12, 8)**

Professor and Dean of Engineering
North Carolina State University

For support of engineering and engineering education through industry-academic collaboration and opportunities for underrepresented groups.

**Mr. William D. Magwood, IV (6)**

Director General
Organization for Economic Cooperation and Development

For leadership and contributions to research programs that drive innovation in global nuclear energy enterprises.

**Professor Margaret R. Martonosi (5)**

Hugh Trumbull Adams '35 Professor
Princeton University

For contributions to power-aware and power-efficient computer architectures and mobile systems.

**Dr. Hani S. Mahmassani (4, 8)**

William A. Patterson Distinguished Chair in Transportation Director, Transportation Center
Northwestern University

For contributions to modeling of intelligent transportation networks and to interdisciplinary collaboration in transportation engineering.

**Dr. Marcia K. McNutt (11)**

President
National Academy of Sciences

For elucidation of lithosphere geomechanics and leadership in earth resources engineering.



CLASS OF 2021 MEMBERS



Ms. Pamela A. Melroy (1)

Chief Executive Officer
Melroy & Hollett Technology Partners, LLC

For contributions to human space flight, space access, space situation awareness, and military aeronautics systems.



Professor Oyekunle Olukotun (5)

Cadence Design Professor Electrical Engineering and Computer Science
Stanford University

For contributions to on-chip multiprocessor architectures and advancement to commercial realization.



Dr. Danielle W. Merfeld (6)

Vice President & Chief Technology Officer GE Renewable Energy
General Electric Company

For leadership and development of products for large wind turbines and solar photovoltaic systems.



Professor Mari Ostendorf (5, 7)

System Design Methodologies Professor
University of Washington

For contributions to statistical and prosodic models for speech and natural language processing and for advances in conversational dialogue systems.



Dr. Sumita B. Mitra (9)

Founder and Partner
Mitra Chemical Consulting, LLC

For designing and engineering nanomaterials that have revolutionized dental care worldwide.



Dr. Maria Palasis (3)

President & CEO
Lyra Therapeutics

For outstanding contributions to the design of medical devices and drug delivery systems.



Mr. Mick C. Mountz (8, 10)

Founder & CEO (retired)
Kiva System, Inc.

For advancing industrial mobile robotic material handling systems for order fulfillment.



Professor Jong-Shi Pang (8)

Epstein Family Chair of Industrial and Systems Engineering
University of Southern California

For the development of methods to advance the theory and applications of optimization and operations research.



Dr. Julio A. Navarro (1, 7)

Senior Technical Fellow Boeing Research & Technology
The Boeing Company

For development and implementation of phased array sensors and communication systems for aerospace applications.



Dr. Mario J. Paniccia (7)

CEO
Anello Photonics

For contributions to integrated silicon photonic devices and their commercialization.

CLASS OF 2021 MEMBERS

Mr. Glaucio H. Paulino (10, 4)

Raymond Allen Jones Chair and Professor Civil and Environmental Engineering
Georgia Institute of Technology

For contributions to topology optimization and its applications to medicine and engineering.

**Professor Laura J. Pyrak-Nolte (11)**

Distinguished Professor of Physics and Astronomy
Purdue University

For advances in understanding of the processes that link the mechanical, hydraulic, and seismic properties in discontinuities.

**Dr. Fernando C. Pereira (5)**

Vice-President and Engineering Fellow
Google, Inc.

For contributions to speech, natural language, and machine learning.

**Dr. William A. Radasky (12)**

President and Managing Engineer
Metatech Corporation

For leadership in the development and application of electromagnetic transient disturbance and protection standards for national security and commercial systems.

**Professor David J. Perreault (6, 7)**

Joseph F. and Nancy P. Keithley Professor of Electrical Engineering
Massachusetts Institute of Technology

For contributions to power electronics technology and design techniques for very high frequency energy conversion.

**Professor Theodore S. Rappaport (7, 5)**

David Lee/Ernst Weber Chaired Professor
New York University
Tandon School of Engineering

For contributions to the characterization of radio frequency propagation in millimeter wave bands for cellular communication networks.

**Dr. Mark T. Peters (6, 11)**

Executive Vice President for Laboratory Operations
Battelle Memorial Institute

For leadership and contributions in advancing US nuclear energy capabilities and infrastructure.

**Dr. Lutgarde M. Raskin (4)**

Vernon L. Snoeyink Distinguished University Professor
Altarum/ERM Russell O'Neal Professor of Engineering
University of Michigan

For application of genetic tools to improve anaerobic biological water treatment.

**Dr. Joseph B. Powell (3, 12)**

Chief Scientist Chemical Engineering Chemicals & New Energies Technology
Shell Technology Center

For contributions to process developments in energy, chemicals, and biofuels technologies.

**Dr. Peter B. Roemer (2, 7)**

GE Healthcare (Retired)

For contributions to performance improvement and widespread availability of MRI technology.



CLASS OF 2021 MEMBERS



Ms. Jeanne M. Rosario (1, 10)
Former Vice President and General Manager
Engineering Division
General Electric Aviation

For leadership in advancing aircraft engine design, global engineering, and support for women in engineering.



Professor J. Marshall Shepherd (12, 11)
Georgia Athletic Association Distinguished
Professor and Director
University of Georgia

For development of methods to understand the Earth's hydrometeorological and hydroclimate system, and for climate science public communication and outreach.



Dr. Krishan K. Sabnani (7, 5)
Networking Research VP Emeritus
Bell Labs, Nokia

For contributions to software-defined routing and networks.



Dr. John B. Simpson (2)
Staff Cardiologist
Sequoia Hospital

For contributions to coronary angioplasty and atherectomy, and their widespread application.



Professor Kamal Sarabandi (12, 7)
Rufus S. Teesdale Endowed Professor of
Engineering
University of Michigan

For contributions to the science and technology of radar remote sensing.



Professor Winston O. Soboyejo (9)
Senior Vice President and Provost
Worcester Polytechnic Institute

For contributions to understanding dynamic behavior of materials and for leadership in STEM outreach in Africa.



Mr. Mark P. Sarkisian (4)
Partner Structural and Seismic Engineering
Skidmore Owings and Merrill, LLP

For innovation in efficient and aesthetic design of tall buildings and structures.



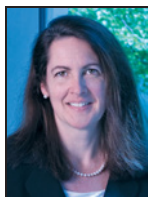
Dr. S.V. Sreenivasan (8)
Joe C. Walter Endowed Chair in Engineering
The University of Texas at Austin

For research, innovation, and entrepreneurship in industrial deployment of nanoimprint lithography equipment.



Professor Rachel A. Segalman (3, 9)
Department Chair and Edward Noble Kramer
Professor
University of California, Santa Barbara

For contributions to semiconducting block polymers, polymeric ionic liquids, and hybrid thermoelectric materials.



Dr. Kathleen J. Stebe (3)
Goodwin Professor,
Applied Sciences & Engineering
University of Pennsylvania

For contributions to understanding of nonequilibrium processes at soft matter interfaces and their impact on new technologies.

CLASS OF 2021 MEMBERS

Dr. Yu-Chong Tai (7, 2)

Anna L. Rosen Professor of Electrical Engineering and Medical Engineering
California Institute of Technology

For contributions to microelectromechanical system technologies and parylene-based biomedical microdevices.

**Dr. Arthur J. Tipton (2)**

Founder and CEO
Vulcan Gray

For the development and commercialization of drug delivery systems, business leadership, and fostering STEM education of disadvantaged students.

**Dr. Juming Tang (12)**

Regents Professor and Distinguished Chair of Food Engineering
Washington State University

For invention and commercialization of electromagnetic spectrum wave based food processes.

**Dr. Nikhil C. Trivedi (11, 9)**

Senior Partner
Idekin International

For development of minerals processing technologies and mineral products for the paper, polymer, and building industries.

**Professor Jefferson W. Tester (3, 11)**

Croll Professor of Sustainable Energy Systems
Cornell University

For leadership in development of novel renewable energy systems.

**Dr. Hongtei E. Tseng (10, 5)**

Senior Technical Leader
Ford Research and Innovation Center
Ford Motor Company

For contributions to control systems for enhancing vehicle safety.

**Dr. Michael M. Thackeray (9)**

Argonne Emeritus, Distinguished Fellow and Senior Scientist
Argonne National Laboratory

For invention of cathode materials that dominate in Li-ion batteries for electric vehicles and grid storage.

**Ms. Vickie A. VanZandt (6)**

President
VanZandt Electric Transmission Consulting, Inc.

For contributions to advanced transmission, protection, and wide area monitoring systems.

**Professor Levi T. Thompson (3, 9)**

Elizabeth Inez Kelley Professor and Dean,
College of Engineering
University of Delaware

For advances in catalysis and energy storage, entrepreneurship, and academic leadership.

**Dr. Yurii Vlasov (7, 2)**

GEBI Founder Professor of Engineering
Electrical and Computer Engineering
University of Illinois at Urbana-Champaign

For contributions to development and commercialization of silicon photonics for optical data communications.



CLASS OF 2021 MEMBERS



Ms. Cindy L. Wallis-Lage (4)
Executive Director and President Water Business
Black & Veatch, Engineers-Architects

For applying innovative technology to complex large-scale water infrastructure systems.



Dr. Murty V. Yalla (6, 7)
Vice President & General Manager
Beckwith Electric Co., Inc.

For contributions to digital protection and control devices for the grid.



Mr. Christopher J. Wiernicki (12, 4)
Chairman, President and CEO
ABS Group of Companies

For innovations in the design, engineering, and operation of ships and offshore structures.



Professor Jackie Y. Ying (2, 3)
Senior Fellow
Agency for Science, Technology and Research (A*STAR)

For contributions at the interface of nanostructured materials, nanomedicine, and diagnostic devices to improve human health.



Professor Donald R. Wilton (7, 5)
Professor Emeritus
Department of Electrical and Computer Engineering
University of Houston

For contributions to computational electromagnetics of highly complex structures.



Dr. Matthew J. Zaluzec (9, 8)
Professor of Materials Science and Engineering
University of Florida

For innovation of lightweight materials and manufacturing technologies to improve automotive fuel economy and safety and reduce the carbon footprint.

CLASS OF 2021 INTERNATIONAL MEMBERS

**Dr. Takuzo Aida (9, 3)**

Professor of Chemistry and Biotechnology
University of Tokyo

For contributions to the engineering of smart and adaptive molecular materials using physical perturbation of multivalent interactions.

**Dr. Peter Fratzl (9, 12)**

Director, Prof. Dr. Dr. h.c.
Department of Biomaterials
Max Planck Institute of Colloids and Interfaces

For studies of structure and physical properties of biological materials and their application in materials science and medicine.

**Dr. AbdulHameed AlHashem (9)**

Principal Research Scientist Petroleum
Research Center
Kuwait Institute for Scientific Research

For research in support of improved materials for the energy sector, and establishment of atmospheric corrosion maps for Kuwait.

**Professor Xiaobing Fu (2)**

Professor and Director
College of Life Sciences
General Hospital of PLA

For achievements in elucidating wound healing mechanisms and sweat gland regeneration, and national leadership in clinical management of trauma.

**Dr. Paula M. Alves (2)**

CEO
iBET, Instituto de Biologia Experimental e
Tecnologica

For leadership in biomanufacturing, advanced biotherapeutics, and bridging the gap between academia and industry.

**Professor Luis E. Garcia (4)**

Honorary Professor
Universidad de Los Andes

For contributions to the earthquake-resistant design, construction, and building code development of concrete structures.

**Dr. Giuseppe Bellussi (3)**

Senior Vice President Development,
Operations and Technology Division (retired)
Eni S.p.A

For development and commercialization of environmentally beneficial chemical processes.

**Dr. Elisabeth L. Guazzelli (3, 10)**

Distinguished Senior Researcher
Matière et Systèmes Complexes
CNRS-University of Paris VI

For experiments and theory that enhance understanding of dispersed particulate systems.

**Dr. Sebastian Ceria (8)**

Chief Executive Officer
Qontigo

For application of optimization tools to advance integer programming and financial engineering.

**Dr. Sudhir K. Jain (4)**

Director
Indian Institute of Technology Gandhinagar

For leadership in earthquake engineering in developing countries.

CLASS OF 2021 INTERNATIONAL MEMBERS

Dr. Jyeshtharaj B. Joshi (3)

Emeritus Professor of Eminence
University Institute of Chemical Technology
(UICT)

For contributions in rational design of multiphase chemical process equipment and leadership in shaping the Indian chemical industry.

**Dr. Mario V. Pereira (8)**

President and Chief Innovation Officer
PSR Energy Consulting and Analytics

For contributions to methodology and implementation of multi-stage stochastic optimization in hydroelectric scheduling, energy planning, and policy.

**Professor Johann W. Kolar (6)**

Professor Information
Technology and Electrical Engineering
ETH Zurich

For contributions to power-electronic technologies, multiobjective design optimization, education, and technology transfer to industry.

**Professor Barbara Sherwood Lollar (11)**

University Professor of Earth Sciences
University of Toronto

For contributions to understanding of the evolution of Earth's groundwater and atmosphere.

**Professor Khaled B. Letaief (7, 5)**

Chair Professor
& New Bright Professor of Engineering
The Hong Kong University of Science and
Technology

For contributions to adaptive resource allocation in multiuser orthogonal frequency-division multiplexing wireless systems and for academic leadership.

**Professor Pierre M. Suquet (10)**

Distinguished Senior Scientist
Laboratoire de Mécanique et d'Acoustique
CNRS-University of Paris VI

For contributions to the mechanics of nonlinear behavior of heterogeneous viscoplastic solids.

**Professor Alejandro López Valdivieso (11)**

Profesor Investigador
Area de Ingeniería de Minerales
Universidad Autónoma de San Luis Potosí

For contributions to the processing of complex sulfide ores and educational leadership.

**Professor Christofer Toumazou (7, 2)**

Regius Professor of Engineering
Imperial College London

For innovations in electronics for medicine, including rapid diagnostics.

**Dr. Yoelle Maarek (5)**

VP of Research
Amazon

For contributions to online information retrieval and data management, and leadership in applied industrial research.

**Dr. Marinus A. Van den Brink (12)**

President and Chief Technology Officer
ASML

For driving advances in optical and extreme ultraviolet lithography that enable smaller, faster, and more energy-efficient semiconductor devices.



CLASS OF 2021 INTERNATIONAL MEMBERS



Professor Luc Van den hove (7)
President & CEO
Interuniversity Microelectronics Center (IMEC)

For leadership in major international industry-university collaborations for the semiconductor industry.



Professor Wanming Zhai (4, 10)
Dean of Faculty
Southwest Jiaotong University

For contributions to the design and operation of high-speed rail transportation networks.



Professor Yangsheng Xu (10)
President
The Chinese University of Hong Kong

For contributions in space robotics and autonomous systems.



Professor Xiaoxin Zhou (6)
Honorary President
China Electric Power Research Institute

For contributions to the development and implementation of power systems technology in China.

CLASS OF 2021

By Section and
Geographic Location



CLASS OF 2021 BY SECTION

SECTION 1 AEROSPACE ENGINEERING (PRIMARY SECTION)

How, Jonathan P.
Jones, Christopher Tyler
Krone, Roger A.
Lavender, Shelley K.
Lee, B. Gentry
Leon, Claire
Melroy, Pamela Ann
Navarro, Julio A.
Rosario, Jeanne M.

SECTION 1 AEROSPACE ENGINEERING (SECONDARY SECTION)

Dryer, Frederick
Huang, Hao

SECTION 2 BIOENGINEERING (PRIMARY SECTION)

Alves, Paula Marques
Aunins, John Grant
Corrigan, Catherine Ford
Dordick, Jonathan S
Doyle, Francis J., III
Fu, Xiaobing
García, Andrés Jose
Ingber, Donald E.
Kaplan, David L.
Makower, Josh
Roemer, Peter Bernard
Simpson, John B.
Tipton, Arthur J.
Ying, Jackie Y.

SECTION 2 BIOENGINEERING (SECONDARY SECTION)

Bowman, Christopher N.
Cabrera, Carlos A.
Tai, Yu-Chong
Toumazou, Christofer
Vlasov, Yurii

SECTION 3 CHEMICAL ENGINEERING (PRIMARY SECTION)

Bellussi, Giuseppe
Bem, David
Bowman, Christopher N.
Cabrera, Carlos A.
Guazzelli, Elisabeth Louise Marie
Hurter, Patricia Nell
Joshi, Jyeshtharaj Bhalchandra
Palasis, Maria
Powell, Joseph B.
Segalman, Rachel A.
Stebe, Kathleen J.
Tester, Jefferson W.
Thompson, Levi Theodore

SECTION 3 CHEMICAL ENGINEERING (SECONDARY SECTION)

Aida, Takuzo
Allgor, Russell John
Arkles, Barry
Collins, Lance R.
Dordick, Jonathan S
Doyle, Francis J., III
Hazen, Nick
Ying, Jackie Y.

SECTION 4 CIVIL & ENVIRONMENTAL ENGINEERING (PRIMARY SECTION)

Barnard, James L.
Burke, Christopher B.
García, Luis Enrique
Haas, Charles N.
Jain, Sudhir K.
Kiremidjian, Anne Setian
Mahmassani, Hani S.
Malley, James O.
Raskin, Lutgarde M.
Sarkisian, Mark Peter
Wallis-Lage, Cindy L.
Zhai, Wanming

SECTION 4 CIVIL ENGINEERING (SECONDARY SECTION)

Krajewski, Witold F.
Paulino, Glaucio H.
Wiernicki, Christopher J.

SECTION 5 COMPUTER SCIENCE AND ENGINEERING (PRIMARY SECTION)

Barroso, Luiz André
Cheng, Lili
Freeman, William T.
Maarek, Yoelle
Martonosi, Margaret R.
Olukotun, Oyekunle
Ostendorf, Mari
Pereira, Fernando C.

SECTION 5 COMPUTER SCIENCE AND ENGINEERING (SECONDARY SECTION)

Colgate, James Edward
How, Jonathan P.
Letaief, Khaled Ben
Rappaport, Theodore Scott
Sabnani, Krishan K.
Tseng, Hongtei Eric
Wilton, Donald R.

SECTION 6 ELECTRIC POWER/ENERGY SYSTEMS ENGINEERING (PRIMARY SECTION)

Davis, Erroll Brown, Jr.
Huang, Hao
Ilic, Marija D.
Jackson, Kathryn J.
Kolar, Johann W.
Magwood, William D., IV
Merfeld, Danielle W.
Perreault, David J.
Peters, Mark Todd
VanZandt, Vickie A.
Yalla, Murty V. V. S.
Zhou, Xiaoxin

SECTION 7 ELECTRONICS, COMMUNICATIONS & INFORMATION SYSTEMS ENGINEERING (PRIMARY SECTION)

Brown, Julia J.
Cendes, Zoltan J.
Delfyett, Peter J., Jr.
Laroia, Rajiv
Letaief, Khaled Ben
Paniccia, Mario J.
Rappaport, Theodore Scott
Sabnani, Krishan K.
Tai, Yu-Chong
Toumazou, Christofer
Van den hove, Luc
Vlasov, Yurii
Wilton, Donald R.

SECTION 7 ELECTRONICS, COMMUNICATIONS & INFORMATION SYSTEMS ENGINEERING (SECONDARY SECTION)

Kafafi, Zakya H.
Krone, Roger A.
Navarro, Julio A.
Ostendorf, Mari
Perreault, David J.
Roemer, Peter Bernard
Sarabandi, Kamal
Yalla, Murty V. V. S.

SECTION 8 INDUSTRIAL, MANUFACTURING, AND OPERATIONAL SYSTEMS ENGINEERING (PRIMARY SECTION)

Allgor, Russell John
Ceria, Sebastian
Hogan, William Walter
Mountz, Mick C.
Pang, Jong-Shi
Pereira, Mario Veiga Ferraz
Sreenivasan, S.V.

SECTION 8 INDUSTRIAL, MANUFACTURING, AND OPERATIONAL SYSTEMS ENGINEERING (SECONDARY SECTION)

Madni, Azad M.
Mahmassani, Hani S.
Martin-Vega, Louis A.
Zaluzec, Matthew J.

SECTION 9 MATERIALS ENGINEERING (PRIMARY SECTION)

Aida, Takuzo
AlHashem, AbdulHameed
Arkles, Barry
Fratzl, Peter
Hawker, Craig J
Kafafi, Zakya H.
Kelly, Thomas F.
Mitra, Sumita B.
Soboyejo, Winston Oluwole
Thackeray, Michael Makepeace
Zaluzec, Matthew J.

SECTION 9 MATERIALS ENGINEERING (SECONDARY SECTION)

Badesha, Santokh S.
Bem, David
Segalman, Rachel A.
Thompson, Levi Theodore
Trivedi, Nikhil C.

SECTION 10 MECHANICAL ENGINEERING (PRIMARY SECTION)

Colgate, James Edward
Collins, Lance R.
Dryer, Frederick
Lockwood, Frances E.
Paulino, Glaucio H.
Suquet, Pierre Marie
Tseng, Hongtei Eric
Xu, Yangsheng

SECTION 10 MECHANICAL ENGINEERING (SECONDARY SECTION)

Guazzelli, Elisabeth Louise Marie
Makower, Josh
Mountz, Mick C.
Rosario, Jeanne M.
Zhai, Wanming

CLASS OF 2021 BY SECTION

SECTION 11 EARTH RESOURCES ENGINEERING

(PRIMARY SECTION)

Arnold, James R.
Goldberg, Gary J.
Hazen, Nick
Hill, Mary Catherine
López Valdivieso, Alejandro
McNutt, Marcia
Pyrak-Nolte, Laura J.
Sherwood Lollar, Barbara
Trivedi, Nikhil C.

SECTION 11 EARTH RESOURCES ENGINEERING

(SECONDARY SECTION)

Bellingham, James Gladen
Peters, Mark Todd
Shepherd, J. Marshall
Tester, Jefferson W.

SECTION 12 SPECIAL FIELDS AND INTERDISCIPLINARY ENGINEERING

(PRIMARY SECTION)

Badesha, Santokh S.
Bellingham, James Gladen
Kelly, Terri L.
Krajewski, Witold F.
Madni, Azad M.
Martin-Vega, Louis A.
Radasky, William A.
Sarabandi, Kamal
Shepherd, J. Marshall
Tang, Juming
Van den Brink, Marinus Aart
Wiernicki, Christopher J.

SECTION 12 SPECIAL FIELDS AND INTERDISCIPLINARY ENGINEERING

(SECONDARY SECTION)

Fratzl, Peter
Haas, Charles N.
Hill, Mary Catherine
Jackson, Kathryn J.
Kiremidjian, Anne Setian
Leon, Claire
Powell, Joseph B.

CLASS OF 2021 BY GEOGRAPHIC LOCATION

ALABAMA

Tipton, Arthur J.

CALIFORNIA

Barroso, Luiz André
Corrigan, Catherine Ford
Hawker, Craig J
Kiremidjian, Anne Setian
Lee, B. Gentry
Leon, Claire
Madni, Azad M.
Makower, Josh
Malley, James O.
Olukotun, Oyekunle
Pang, Jong-Shi
Paniccia, Mario J.
Pereira, Fernando C.
Radasky, William A.
Sarkisian, Mark Peter
Segalman, Rachel A.
Simpson, John B.
Tai, Yu-Chong

COLORADO

Bowman, Christopher N.
Goldberg, Gary J.
Hazen, Nick

DELAWARE

Kelly, Terri L.
Thompson, Levi Theodore

DISTRICT OF COLUMBIA

McNutt, Marcia

FLORIDA

Cendes, Zoltan J.
Delyfett, Peter J.
Mitra, Sumita B.
Roemer, Peter Bernard
Yalla, Murty V. V. S.
Zaluzec, Matthew J.

GEORGIA

Davis, Erroll Brown
García, Andrés Jose
Paulino, Glaucio H.
Shepherd, J. Marshall

ILLINOIS

Burke, Christopher B.
Cabrera, Carlos A.
Colgate, James Edward
Mahmassani, Hani S.
Thackeray, Michael Makepeace
Vlasov, Yuri

INDIANA

Pyrak-Nolte, Laura J.

IOWA

Krajewski, Witold F.

KANSAS

Barnard, James L.
Hill, Mary Catherine

KENTUCKY

Lockwood, Frances E.

MASSACHUSETTS

Aunins, John Grant
Bellingham, James Gladen
Doyle, Francis J.
Freeman, William T.
Hogan, William Walter
How, Jonathan P.
Hurter, Patricia Nell
Ilic, Marija D.
Ingber, Donald E.
Kaplan, David L.
Mountz, Mick C.
Palasis, Maria
Perreault, David J.
Soboyejo, Winston Oluwole

MICHIGAN

Raskin, Lutgarde M.
Sarabandi, Kamal
Tseng, Hongtei Eric

MISSOURI

Lavender, Shelley K.
Wallis-Lage, Cindy L.

NEW JERSEY

Brown, Julia J.
Laroia, Rajiv
Martonosi, Margaret R.
Sabnani, Krishan K.

NEW YORK

Badesha, Santokh S.
Ceria, Sebastian
Dordick, Jonathan S
Rappaport, Theodore Scott
Tester, Jefferson W.

NORTH CAROLINA

Martin-Vega, Louis A.
Merfeld, Danielle W.

OHIO

Peters, Mark Todd

PENNSYLVANIA

Arkles, Barry
Bem, David
Haas, Charles N.
Jackson, Kathryn J.
Stebe, Kathleen J.
Trivedi, Nikhil C.

SOUTH CAROLINA

Arnold, James R.
Dryer, Frederick
Rosario, Jeanne M.

TEXAS

Huang, Hao
Powell, Joseph B.
Sreenivasan, S.V.
Wiernicki, Christopher J.
Wilton, Donald R.

VIRGINIA

Collins, Lance R.
Jones, Christopher Tyler
Kafafi, Zakyia H.
Krone, Roger A.
Melroy, Pamela Ann

WASHINGTON

Allgor, Russell John
Cheng, Lili
Navarro, Julio A.
Ostendorf, Mari
Tang, Juming
VanZandt, Vickie A.

WISCONSIN

Kelly, Thomas F.

BELGIUM

Van den hove, Luc

BRAZIL

Pereira, Mario Veiga Ferraz

CANADA

Sherwood Lollar, Barbara

CHINA

Fu, Xiaobing
Xu, Yangsheng
Zhai, Wanming
Zhou, Xiaoxin

COLOMBIA

Garcia, Luis Enrique

FRANCE

Guazzelli, Elisabeth Louise Marie
Magwood, William D.
Suquet, Pierre Marie

GERMANY

Fratzl, Peter

HONG KONG

Letaief, Khaled Ben

INDIA

Jain, Sudhir K.
Joshi, Jyeshtharaj Bhalchandra

ISRAEL

Maarek, Yoelle

ITALY

Bellussi, Giuseppe

JAPAN

Aida, Takuzo

KUWAIT

AlHashem, AbdullHameed

MEXICO

López Valdivieso, Alejandro

NETHERLANDS

Van den Brink, Marinus Aart

PORTUGAL

Alves, Paula Marques

SINGAPORE

Ying, Jackie Y.

SWITZERLAND

Kolar, Johann W.

UNITED KINGDOM

Toumazou, Christofer

NAE
ANNIVERSARY
MEMBERS



NAE ANNIVERSARY MEMBERS

50+ YEARS

Members whose names are in boldface type are celebrating their 50th year.

Arthur E Bryson
John S Foster, Jr.

Roy W Gould

Richard J Grosh

Robert G Loewy

J. Ross Macdonald
William J Perry

45 TO 49 YEARS

Members whose names are in boldface type are celebrating their 45th year.

H. Norman Abramson

Alfredo H Ang

Daniel Berg

Donald L Bitzer
Andrew H Bobeck
Lewis M Branscomb

John E Breen

Frederick P Brooks, Jr.

Norman H Brooks
J. Fred Bucy

Anthony J DeMaria

Joseph Feinstein

Steven J Fenves

A.J. Field

Merton C Flemings

Douglas W Fuerstenau

Ivar Giaever
James F Gibbons
Ralph E Gomory

John B Goodenough

John C Hancock

Joseph M Hendrie

John P Hirth
Nick Holonyak, Jr.

Arthur E Humphrey

Hans Mark

James K Mitchell

Gordon E Moore

Ivan E Sutherland
Morris Tanenbaum
John B Wachtman, Jr.
William M Webster
James G Wenzel

Amnon Yariv

40 TO 44 YEARS

Members whose names are in boldface type are celebrating their 40th year.

Egil Abrahamsen
Andreas Acrivos
John G Anderson
Seymour Baron

Lionel O Barthold

Wallace B Behnke
C. Gordon Bell
William B Bridges
Jose B Cruz, Jr.
Robert C Dean, Jr.

Daniel B DeBra

Raymond F Decker
Leo Esaki
Thomas E Everhart
Theodore V Galambos
Robert G Gallager
William J Galloway
Richard L Garwin
Welko E Gasich

Ronald L Geer
Stephen E Harris
Charles L Hosler, Jr.
Paul C Jennings
Bernard H Kear

C. Judson King

Leonard Kleinrock
Donald E Knuth
Herwig Kogelnik
Henry Kressel
William R Lucas
Robert W Lucky
Robert D Maurer
John S Mayo
Perry L McCarty
Ross E McKinney
Charles J McMahon, Jr.
Johannes Moe
Carl L Monismith

C. Kumar N Patel
J. R. Anthony Pearson
Marc J Pelegrin
Karl S Pister
John M Prausnitz
Ronald F Probststein
James R Rice
Herbert H Richardson
Irwin W Sandberg
Theodore Stern
Kenneth Thompson
Andrew J Viterbi
James Wei
Jasper A Welch, Jr.
Lloyd R Welch
Albert R Westwood
Gerald L Wilson
Takeo Yokobori

NAE ANNIVERSARY MEMBERS

35 TO 39 YEARS

Members whose names are in boldface type are celebrating their 35th year.

Dell K Allen
William A Anders
Norman R Augustine
Arden L Bement, Jr.
John G Bollinger
H. Kent Bowen
Klaus D Bowers
John F Cashen
Alfred Y Cho
Anil K Chopra
Philip M Condit
Richard A Conway
James W Dally
F. Paul de Mello
Morton M Denn
Robert H Dennard
James M Duncan
Charles A Eckert
Richard E Emmert
John V Evans
Edward A Feigenbaum
John W Fisher
G. David Forney, Jr.
Donald C Fraser
Richard J Goldstein

Hermann K Gummel
Robert S Hahn
Kent F Hansen
Robert D Hanson
Kenneth E Haughton
Alfred J Hendron, Jr.
Cyril Hilsum
David A Hodges
William G Howard, Jr.
John W Hutchinson
Anthony J Iorillo
Erich P Ippen
Irwin M Jacobs
Robert B Jansen
Trevor O Jones
Thomas Kailath
Albert S Kobayashi
James N Krebs
Butler W Lampson
Ronald M Latanision
Kaye D Lathrop
George Leitmann
Peter W Likins
Dan Luss
John W Lyons

John B MacChesney
Robert Malpas
Carver A Mead
Robert Mehrabian
Chiang C Mei
Richard C Messinger
Harold Mirels
Joel Moses
Hyla S Napadensky
George L Nemhauser
Robin B Nicholson
William G Oldham
Morton B Panish
J. Randolph Paulling
Thomas K Perkins
George P Peterson
John W Poduska, Sr.
Michael Prats
Lawrence R Rabiner
Raj Reddy
Eli Reshotko
Jerome G Rivard
Stanley T Rolfe
Ronald E Rosensweig
James F Roth

Chih-Tang Sah
John H Schmertmann
William R Schowalter
Charles D Scott
John H Seinfeld
Eugene Sevin
Charles V Shank
Eugene D Shchukin
Merrill I Skolnik
John B Slaughter
George E Smith
Kenneth A Smith
Ponisseril Somasundaran
Dale F Stein
Chung L Tang
Nickolas J Themelis
Vern W Weekman, Jr.
Sheldon Weinig
Willis S White, Jr.
Sheila E Widnall
Edward L Wilson
Theodore Y Wu
Dante C Youla
Paul Zia

NAE ANNIVERSARY MEMBERS

30 TO 34 YEARS

Members whose names are in boldface type are celebrating their 30th year.

Richard C Alkire
Minoru S Araki
John A Armstrong
Michael F Ashby
Bishnu S Atal
David H Austin
Donald W Bahr
William F Ballhaus, Jr.
Robert G Bea
George A Bekey
Alexis T Bell
John A Betti
James R Biard
Joel S Birnbaum
Richard E Blahut
Kenneth A Blenkarn
Geoffrey Boothroyd
Donald A Brand
Roger W Brockett
Robert W Brodersen
Robert A Brown
Robert D Burnham
Robert L Byer
James D Callen
William J Carroll
John R Casani
Kenneth E Case
Steve S Chen
Herbert S Cheng
Richard M Christensen
Jon F Claerbout
Rodney J Clifton
G. Wayne Clough
James M Coleman
Harry M Conger
Robert W Conn
Lynn A Conway
Edward J Cording
Ernest L Daman
Frederick H Dill
Stephen W Director
James J Duderstadt
Russell D Dupuis
Lloyd A Duscha
Robert W Dutton
Robert J Eaton
James Economy
Charles Elachi
Gerard W Elverum
Charles Fairhurst
Odd M Faltinsen

Frank F Fang
Robert E Fischell
Edith M Flanigen
Alan B Fowler
Judson C French
Samuel H Fuller
Elsa M Garmire
Jerome B Gilbert
Alastair M Glass
W. Barney Gogarty
Marvin E Goldstein
Joseph W Goodman
Richard E Goodman
Bernard M Gordon
Arthur C Gossard
Paul R Gray
Donald P Greenberg
Keith E Gubbins
Donald L Hammond
Howard R Hart, Jr.
Juris Hartmanis
Michael Hatzakis
Siegfried S Hecker
Adam Heller
Robert J Hermann
Arthur H Heuer
Edward A Hiler
Narain G Hingorani
George J Hirasaki
Yu-Chi Ho
Lester A Hoel
John E Hopcroft
Izzat M Idriss
James F Jackson
Marvin E Jensen
James O Jirsa
Ellis L Johnson
Gunther F Joklik
Frank D Judge
Robert E Kahn
Melvin F Kanninen
Frank E Karasz
Robert H Kingston
Bernard L Koff
David J Kuck
Leslie B Lampport
Louis J Lanzerotti
Gerald D Laubach
L. Gary Leal
Norman N Li
Barbara H Liskov

John D Little
Benjamin Y Liu
Daniel P Loucks
Albert Macovski
Thomas L Magnanti
Robert C Marini
Robert F Mast
James F Mathis
Shiro Matsuoka
Adolf D May
John C McDonald
Eugene R McGrath
James C McGroddy
David G Messerschmitt
Keith K Millheim
James W Mitchell
Sanjoy K Mitter
Joe H Mize
L. David Montague
C. D. (Dan) Mote, Jr.
Van C Mow
Earl M Murman
Albert Narath
Stuart O Nelson
Arun N Netravali
J. Nicholas Newman
William D Nix
Ronald P Nordgren
J. Tinsley Oden
Alan V Oppenheim
Frank L Parker
Ronald R Parker
Bradford W Parkinson
Donald R Paul
Val P Peline
Arno A Penzias
Donald E Petersen
R. Byron Pipes
Edwin P Przybylowicz
Robert A Rapp
W. Harmon Ray
Ronald L Rivest
Enders A Robinson
Ignacio Rodriguez-Iturbe
Larry A Roesner
Ronald A Rohrer
Murray W Rosenthal
William B Rouse
Elbert L Rutan
Gavriel Salvendy
Alan Schriesheim

Norman R Scott
Laurence C Seifert
Frank S Settles
Don W Shaw
Michael L Shuler
Leonard M Silverman
Richard W Skaggs
Henry I Smith
Helmut E Sobieczky
James J Solberg
William J Spencer
Fred I Stalkup
Charles V Sternling
Richard G Strauch
William D Strecker
Ben G Streetman
John H Sununu
Zehev Tadmor
Byron D Tapley
Robert E Tarjan
Robert L Taylor
David A Thompson
Larry F Thompson
Charles E Till
Neil E Todreas
Rao R Tummala
Jeffrey D Ullman
Raymond Viskanta
Irv Waaland
Dianzuo Wang
Kuo K Wang
William Ward, III
Arthur W Westerberg
John A White, Jr.
Robert M White
Janusz S Wilczynski
Forman A Williams
James C Williams
Ward O Winer
Eugene Wong
Jerry M Woodall
David A Woolhiser
Israel J Wygnanski
Loring A Wyllie, Jr.
Henry T Yang
John A Young
Abe M Zarem
Jacob Ziv

NAE ANNIVERSARY MEMBERS

25 TO 29 YEARS

Members whose names are in boldface type are celebrating their 25th year.

Leonard M Adleman

Ronald J Adrian

John L Anderson

John C Angus

Hiroyuki Aoyama

Karl J Astrom

Satya N Atluri

Marc A Auslander

Khalid Aziz

Arthur B Baggeroer

B. Jayant Baliga

Peter M Banks

Craig R Barrett

Robert W Bartlett

Forest Baskett

Zdenek P Bazant

Leslie A Benmark

Barry W Boehm

F. Peter Boer

David B Bogy

Lillian C Borrone

Robert K Brayton

John D Bredehoeft

Peter R Bridenbaugh

Alec N Broers

Alan C Brown

Keith A Browning

Wilfried H Brutsaert

Thomas F Budinger

Jack E Buffington

Federico Capasso

Renso L Caporali

James E Carnes

John J Cassidy

Francois J Castaing

Vinton G Cerf

Don B Chaffin

K. Mani Chandu

Wai-Fah Chen

Uma Chowdhry

David D Clark

Harvey E Cline

Joseph P Colaco

Richard W Conway

Thomas M Cook

Donald C Cox

Magnus G Craford

Jerome J Cuomo

David N Cutler

Lance A Davis

Stephen H Davis

Carl R de Boer

Nicholas M Donofrio

Steven D Dorfman

Earl H Dowell

Elisabeth M Drake

E. Linn Draper, Jr.

Stephen W Drew

T. Dixon Dudderar

George J Dvorak

Lewis S Edelheit

Fredric F Ehrich

Joel S Engel

Leroy (Mike) M Fingerson

Bruce A Finlayson

Fred N Finn

Essex E Finney, Jr.

George M Fisher

Marshall L Fisher

William L Fisher

Nancy D Fitzroy

Paul A Fleury

Samuel C Florman

Hans G Forsberg

L. B. Freund

William H Gates, III

C. William Gear

Thomas G Giallorenzi

Eduardo D Glandt

Martin E Glicksman

Ronald E Goldsberry

Arthur L Goldstein

Susan L Graham

Sidney J Green

Edward M Greitzer

Charles T Haan

George I Haddad

Gene H Haertling

Kenneth N Han

Niels Hansen

Wesley L Harris

Henry J Hatch

John L Hennessy

John A Herbst

George J Hess

Kaare Høeg

George M Hornberger

Barry M Horowitz

Stanley H Horowitz

Thomas J Hughes

Frank P Incropera

Akira Ishimaru

Iwao Iwasaki

Nikil S Jayant

David W Johnson, Jr.

Donald L Johnson

Anita K Jones

John L Junkins

Eugenia Kalnay

Paul G Kaminski

Richard M Karp

John G Kassakian

Susumu Kato

Donald B Keck

Ralph L Keeney

Alexander M Klibanov

Petar V Kokotovic

Mark H Kryder

Gerald L Kulcinski

H. T. Kung

Charles R Kurkjian

Richard T Lahey, Jr.

Bruce M Lake

James L Lammie

Robert S Langer

Robert C Lanphier, III

Richard C Larson

S. Edward Law

George D Leal

W. John Lee

Sidney Leibovich

Johanna M Levelt Sengers

Matthys P Levy

Robert H Liebeck

Robert W MacCormack

Alexander MacLachlan

Thomas J Malone

Anna M Marabini

William F Marcuson, III

Karl E Martersteck

Stephen L Matson

William C Maurer

William J McCroskey

C. Denis Mee

Jarold A Meyer

Jerome H Milgram

Jan D Miller

Warren F Miller, Jr.

Linn F Mollenauer

Francis C Moon

Manfred Morari

William B Morgan

Norbert R Morgenstern

Richard S Muller

Venkatesh Narayanamurti

John Neerhout, Jr.

Shlomo P Neuman

Andrew R Neureuther

Deborah J Nightingale

Tak H Ning

Robert M Nowak

John H Nuckolls

James G O'Connor

Thomas D O'Rourke

Louis C Parrillo

M. Elisabeth Paté-Cornell

David A Patterson

Judea Pearl

Irene C Peden

Alan W Pense

Stewart D Personick

Richard H Petersen

Arun G Phadke

Nelson L Pinto

James D Plummer

William F Powers

Richard B Priority

Robert A Pucel

Michael P Ramage

H. Donald Ratliff

NAE ANNIVERSARY MEMBERS

25 TO 29 YEARS (continued)

Members whose names are in boldface type are celebrating their 25th year.

Elsa Reichmanis
John R Rice
Jose M Roesset

Carl H Rosner

Donald E Ross
John M Rowell
Paul E Rubbert
William B Russel
Jesse E Russell

John M Samuels, Jr.

Stanley I Sandler

Maxine L Savitz
Ronald W Schafer
Jorg Schlaich
Gabriel Schmergel
Ronald V Schmidt
Jerome S Schultz
Robert J Schultz
Lyle H Schwartz

Mischa Schwartz
Charles L Seitz
Robert J Serafin
Robert R Shannon
Hsieh W Shen
Thomas B Sheridan

Jeffrey J Siirola

Arnold H Silver

Larry L Smarr

George S Springer

Karl J Springer

Raymond S Stata
Charles R Steele
Richard J Stegemeier
Gunter Stein
Robert Stratton
Yasuharu Suematsu
James M Symons
Simon M Sze

George J Tamaro
Man-Chung Tang
Richard A Tapia
Kathleen C Taylor

Lewis M Terman

Gary L Tooker

Shoichiro Toyoda
Alvin W Trivelpiece
R. Rhodes Trussell
Stephen W Tsai

Richard L Tucker

G. Keith Turnbull
Robert C Turnbull

Donald R Uhlmann

Fawwaz Ulaby
Gottfried Ungerboeck

Andries van Dam

Robert H Wagoner

Jack L Walker

Steven J Wallach
Kenneth Walters
C. Michael Walton
Jaw-Kai Wang
John D Warner

John E Warnock

Daniel Weihs

Sheldon Weinbaum

W. Henry Weinberg

Ward Whitt

Bernard Widrow
C. Grant Willson
Niklaus Wirth
Savio L Woo
Edgar S Woolard, Jr.
Wm. A Wulf
A. Thomas Young
William D Young
Ben T Zinn