

1 of 1 DOCUMENT

**February** 10, 2016 Wednesday

National Academy of Engineering Elects 80 Members and 22 Foreign Members

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Washington: National Association of Electrical Distributors has issued the following news release:

The National Academy of Engineering (NAE) has elected 80 new members and 22 foreign members, announced NAE President C.D. (Dan) Mote Jr. today. This brings the total U.S. membership to 2,275 and the number of foreign members to 232.

Election to the National Academy of Engineering is among the highest professional distinctions accorded to an engineer. Academy membership honors those who have made outstanding contributions to "engineering research, practice, or education, including, where appropriate, significant contributions to the engineering literature" and to "the pioneering of new and developing fields of technology, making major advancements in traditional fields of engineering, or developing/implementing innovative approaches to engineering education."

Individuals in the newly elected class will be formally inducted during a ceremony at the NAE's Annual Meeting in Washington, D.C. on October 9, 2016. A list of the newly elected members and foreign members follows, with their primary affiliations at the time of election and a brief statement of their principal engineering accomplishments.

New Members

Anderson, Kevin R., Mercury Fellow, corporate research and development, Mercury Marine, Fond du Lac, Wisc. For advances in metals recycling through invention of innovative aluminum alloys.

Anderson, Thomas E., Warren Francis and Wilma Kolm Bradley Endowed Chair in Computer Science and Engineering,

University of Washington, Seattle. For contributions to the design of resilient and efficient distributed computer systems.

Bao, Zhenan, professor of chemical engineering, Stanford University, Stanford, Calif. For synthesis, design, and application of organic semiconductors for flexible electronics.

Battel, Steven J., president, Battel Engineering Inc., Scottsdale, Ariz. For engineering design and implementation of space flight systems.

Bergano, Neal, chief technology officer, TE SubCom, Eatontown, N.J. For innovation and leadership in undersea optical communications.

Blankenship Jr., Charles P., president and chief executive officer, GE Appliances and Lighting Division, General Electric Co., Louisville, Ky. For contributions to the incorporation of new technology in consumer products and aircraft engines.

Boneh, Dan, professor of computer science and electrical engineering, Stanford University, Stanford, Calif. For contributions to the theory and practice of cryptography and computer security.

Busalacchi Jr., Antonio J., director, Earth System Science Interdisciplinary Center, and professor, department of atmospheric and oceanic science, University of Maryland, College Park. For understanding of tropical oceans in coupled climate systems via remotely sensed observations and for international leadership of climate prediction/projection research.

Carter, Emily A., Gerhard R. Andlinger Professor in Energy and the Environment and professor of mechanical and aerospace engineering and applied and computational mathematics, Princeton University, Princeton, N.J. For development of quantum chemistry computational methods for the design of molecules and materials for sustainable energy.

Celia, Michael A., Theodora Shelton Pitney Professor of Environmental Studies and professor of civil and environmental engineering, Princeton University, Princeton, N.J. For contributions to the development of subsurface flow and transport models in groundwater remediation and CO₂ sequestration.

Chang, Frederick R., director, Darwin Deason Institute for Cyber Security, Bobby B. Lyle Endowed Centennial Distinguished Chair in Cyber Security, and professor, department of computer science and engineering, Lyle School of Engineering, Southern Methodist University, Dallas. For leadership in cybersecurity research in the intelligence community and advancing the importance of cybersecurity science in academia.

Cherry, Simon R., distinguished professor, department of biomedical engineering, University of California, Davis. For development of nuclear emission imaging and magnetic resonance technologies for medical science.

Collins, Morton, managing partner, Battelle Ventures LLC, Ewing, N.J. For accomplishments as a builder and manager of technology-based companies and as an adviser to government and universities.

Connelly Jr., Thomas M., executive director and chief executive officer, American Chemical Society, Washington, D.C. For leadership of interdisciplinary innovations in chemical engineering including cellulosic ethanol, polymers, and related materials being used worldwide.

Cornuejols, Gerard P., IBM University Professor of Operations Research, Tepper School of Business, Carnegie Mellon University, Pittsburgh. For contributions to the theory, practice, and application of integer programming.

de Pablo, Juan J., Liew Family Professor in Molecular Engineering and deputy director of education and outreach, University of Chicago, Chicago. For design of macromolecular products and processes via scientific computation.

Delp, Scott L., James H. Clark Professor of Bioengineering, Mechanical Engineering, and Orthopaedic Surgery, Stanford University, Stanford, Calif. For computer simulations of human movement and their applications to treatment of clinical movement pathologies.

Dimotakis, Paul E., John K. Northrop Professor of Aeronautics and professor of applied physics, California Institute of Technology, Pasadena. For contributions to the fluid mechanics of jet propulsion and other processes involving turbulence, mixing, and transport.

Doherty, Michael F., professor of chemical engineering, University of California, Santa Barbara. For the design of methods for complex distillation and crystallization processes.

Doyle, Fiona M., Donald H. McLaughlin Professor of Mineral Engineering, department of materials science and engineering, and dean, graduate division, University of California, Berkeley. For contributions to environmentally benign hydrometallurgy leading to separation of metals from solutions and for leadership in engineering education.

Ellison, Adam J., corporate research fellow, science and technology division, Corning Inc., Corning, N.Y. For invention of advanced glasses with widespread use in mobile device displays.

Fauske, Hans K., emeritus president and regent adviser, Fauske and Associates Inc., Burr Ridge, Ill. For contributions to nuclear and chemical reactor safety.

Gellings, Clark W., principal, Electric Power Research Institute, Palo Alto, Calif. For leadership in demand-side management and for the application of digital technology to improve efficiency and reliability in electric power systems.

Gottscho, Richard A., executive vice president, Global Products Group, Lam Research Inc., Fremont, Calif. For solutions to plasma etch technology and productivity challenges in scaling semiconductor devices from the micro- to nanometer levels.

Greenberg, Albert G., distinguished engineer and director, Azure Networking, Microsoft Corp., Redmond, Wash. For contributions to the theory and practice of operating large carrier and data center networks.

Hatamian, Mehdi, senior vice president of engineering, Broadcom Corp., Irvine, Calif. For contributions to development of integrated circuits for video, communications, and digital signal processing.

Hawkins III, William A., lead director, Immucor Inc., Norcross, Ga. For leadership in biomedical engineering and translational medicine.

Hipwell, Mary Cynthia, vice president of engineering, B&W, Plymouth, Minn. For leadership in the development of technologies to enable areal density increases in hard disk drives.

Ho, Teh C., retired senior research associate, ExxonMobil Research and Engineering Co., Bridgewater, N.J. For contributions to catalytic removal of sulfur and nitrogen compounds from hydrocarbon fuels.

Hubbard Jr., James E., Samuel P. Langley Distinguished Professor, department of aerospace engineering, University of Maryland, College Park, and University of Maryland Langley Professor, National Institute of Aerospace, Hampton, Va. For advances in the modelling, design, analyses, and application of adaptive structures.

Jacobs, Paul E., executive chairman, Qualcomm Inc., San Diego. For leadership in the design, development, and worldwide commercialization of wireless products and services.

Jain, Anil K., University Distinguished Professor, department of computer science and engineering, Michigan State University, East Lansing. For contributions to the engineering and practice of biometrics.

Joffe, Basil Louis, senior operations research consultant, Spiral Software Ltd., Houston. For leadership in optimization-based production planning systems for the petroleum and petrochemical industry.

Johnson, David S., visiting professor of computer science, Columbia University, New York City. For contributions to the theory and practice of optimization and approximation algorithms.

Johnson, Kristina M., co-founder and chief executive officer, Cube Hydro Partners LLC, Chevy Chase, Md. For

development and deployment of liquid crystal on silicon display technologies, the basis for high-speed optoelectronic 3D imaging.

Kelley, Brian D., vice president of bioprocess development, U.S. Biologics Pharma Technical Development, Genentech Inc., Burlingame, Calif. For leadership in the development of bioprocess technology and cost-effective manufacturing processes for clinically effective recombinant protein therapeutics.

Kim, Peter S., Virginia and D.K. Ludwig Professor of Biochemistry, Stanford ChEM-H, Stanford University School of Medicine, Stanford, Calif. For leadership in the discovery and development of novel drugs and vaccines used worldwide.

Klein, Gary J., executive vice president and senior principal, Wiss, Janney, Elstner Associates Inc., Northbrook, Ill. For investigations of national and international infrastructure and conveying knowledge from these investigations to the profession.

Koszewnik, John J., chief technical officer, Achates Power Inc., San Diego. For improvements in the design, development, and production efficiency of vehicle engines.

Krein, Philip T., professor of electrical and computer engineering, and director, Grainger Center for Electric Machinery and Electromechanics, University of Illinois, Urbana-Champaign. For contributions to power electronics technology and education.

Leiserson, Charles E., Edwin Sibley Webster Professor, department of electrical engineering and computer science, Massachusetts Institute of Technology, Cambridge. For theoretically grounded approaches to digital design and parallel computer systems.

Lindsay, Bruce G., IBM fellow emeritus and chief data scientist, Paradata, San Jose, Calif. For the design and implementation of high-performance distributed and extensible database systems.

Liu, Yilu, Governor's Chair Professor, Oak Ridge National Laboratory and University of Tennessee, Knoxville. For innovations in electric power grid monitoring, situational awareness, and dynamic modelling.

Magnusson, Jon D., senior principal, Magnusson Klemencic Associates, Seattle. For building designs that enable high-rise buildings in seismic sensitive regions and for innovations in modern structural engineering practice worldwide.

Maidment, David R., Hussein M. Alharthy Centennial Chair in Civil Engineering, Center for Research in Water Resources, University of Texas, Austin. For the development of geographic information systems applied to hydrologic processes.

Maloney, Michael, manager of structural alloys, hot section materials, and coatings, Pratt and Whitney, East Hartford, Conn. For contributions to the development and implementation of low-conductivity thermal barrier coatings for advanced aircraft engines.

Moorman, Charles W., retired chairman and chief executive officer, Norfolk Southern Corp., Norfolk, Va. For leadership in the development of computerized freight railroad tracking system in North America.

Oliver, Warren C., president, Nanomechanics Inc., Oak Ridge, Tenn. For contributions to the development and commercialization of nanomechanical testing technology.

Oren, Shmuel S., Earl J. Isaac Professor in the Science and Analysis of Decision Making, department of industrial engineering and operations research, University of California, Berkeley. For contributions to the integration of decisions and cooperative market mechanisms for adaptive multisource electrical power systems.

Prabhakar, Arati, director, U.S. Defense Advanced Research Projects Agency, Arlington, Va. For national leadership to advance semiconductor and information technologies.

Pui, David Y.H., Distinguished McKnight University Professor and L.M. Fingerson/TSI Inc. Chair in Mechanical Engineering, University of Minnesota, Minneapolis. For contributions to aerosol and nanoparticle science and engineering for air pollution control.

Rawlings, James B., Paul A. Elfers Professor and W. Harmon Ray Professor, department of chemical and biological engineering, University of Wisconsin, Madison. For contributions to control engineering theory, practice, and education.

Rebeiz, Gabriel M., Wireless Communications Industry Chair Professor of Electrical and Computer Engineering, University of California, San Diego, La Jolla. For contributions to radio frequency microelectromechanical systems (RF MEMS) and phased array technologies.

Reder, Wanda K., vice president, Power Systems Services Division, S&C Electric Co., Chicago. For leadership in electric power delivery and workforce development.

Rodriguez, Rodolfo R., chief scientific officer and founder, Advanced Animal Diagnostics, Morrisville, N.C. For inventions to analyze blood and separate blood components that enable widespread clinical therapies.

Sachs, Emanuel M., scientific advisory board chair, 1366 Technologies, Bedford, Mass. For contributions and commercialization in photovoltaics and three-dimensional printing.

Salamone, Ann Beal, president, Rochal Industries LLP, San Antonio. For development of materials for biomedical applications, personal care, electronics, and water purification.

Santiesteban, José G., manager, Catalyst Technology Division, Process Technology, ExxonMobil Research and Engineering Co., Annandale, N.J. For development and commercialization of catalytic systems for petrochemical manufacture and cleaner fuels production.

Scanlon, Bridget R., senior research scientist, Sustainable Water Resources Program, **Bureau of Economic Geology**, University of Texas, Austin. For contributions to the evaluation of groundwater recharge and aquifer depletion.

Sedlak, David L., Malozemoff Professor in Mineral Engineering, co-director of the Berkeley Water Center, and director, Institute for Environmental Science and Engineering, University of California, Berkeley. For contributions to environmental aqueous chemistry, especially in the areas of water reuse, water contaminants, and urban water infrastructure.

Shahidehpour, Mohammad, Bodine Chair Professor of Electrical and Computer Engineering, director, Robert W. Galvin Center for Electricity Innovation, and associate director, Wanger Institute for Sustainability and Energy Research, Illinois Institute of Technology, Chicago. For contributions to the optimal scheduling of generation in a deregulated electricity market with variable renewable energy sources.

Sinnett, Michael K., vice president of product development, Boeing Commercial Airplanes, The Boeing Co., Woodway, Wash. For leadership in commercial aircraft and aircraft systems development, creating improvements in performance and cost.

Sridhar, K.R., principal co-founder and chief executive officer, Bloom Energy Corp., Sunnyvale, Calif. For contributions to transport phenomena and thermal packaging of electrochemical systems and generation of clean, reliable, and affordable power.

Steigerwald, Robert L., power electronics consulting engineer, Adirondack Power Processing LLC, Burnt Hills, N.Y. For development and deployment of power electronics for medical, transportation, and industrial applications.

Steltzner, Adam Diedrich, manager, Planetary Entry, Descent, and Landing and Small Body Access Office, Jet Propulsion Laboratory, Pasadena, Calif. For development of the Mars Curiosity 2011 entry, descent, and landing system and for contributions to control of parachute dynamics.

Stokes, Grant H., head, Space Systems and Technology Division, MIT Lincoln Laboratory, Lexington, Mass. For innovations in systems for space situational awareness and the discovery of near-Earth asteroids.

Sullivan, Kathryn D., undersecretary of commerce and administrator, National Oceanic and Atmospheric Administration, Washington, DC. For service to the nation through flight in space and leadership of federal oceanography and meteorology.

Sun, Yongkui, executive director of business development and licensing, Merck Research Laboratories, Merck & Co., Rahway, N.J. For contributions to green, economical processes for pharmaceuticals and for developing business strategies in emerging markets.

Swartzel, Kenneth R., William Neal Reynolds Distinguished Professor Emeritus, department of food, bioprocessing, and nutrition sciences, North Carolina State University, Raleigh. For advances in thermal processes of food preservation.

Thakur, Ganesh C., president, Thakur Services Inc., Houston. For leadership in the implementation of integrated reservoir management techniques.

Thomas, Leonard Kent, consultant, Bartlesville, Okla. For contributions to the development and application of reservoir simulators to enhance production from complex reservoirs.

Tompsett, Michael F., retired president and owner, TheraManager LLC, Chatham, Mass. For the design and development of the first charge-coupled device imagers.

Treichler, John R., president, Raytheon Applied Signal Technology, Sunnyvale, Calif. For contributions to digital signal processing and its applications to national intelligence gathering.

Trimberger, Stephen M., fellow, Xilinx, Inc., San Jose, Calif. For contributions to architectures and programming tools for field-programmable gate arrays (FPGAs).

Van de Walle, Chris G., Herbert Kroemer Chair in Materials Science and professor, materials department, University of California, Santa Barbara. For contributions to the theory of semiconductor interfaces and its impact on optoelectronic devices.

Weitz, David A., Mallinckrodt Professor of Physics and Applied Physics and director, Materials Research Science and Engineering Center, Harvard University, Cambridge, Mass. For discoveries of complex fluids, colloids, and emulsions, which have resulted in new products and companies.

Welch, David F., co-founder and president, Infinera Corp., Sunnyvale, Calif. For contributions to high-power semiconductor lasers and photonic integrated circuits.

West, Jennifer L., Fitzpatrick Family University Professor of Engineering and professor, departments of biomedical engineering, and mechanical engineering and materials science, Duke University, Durham, N.C. For developments in photothermal and theranostic therapies and bioabsorbed scaffolds for tissue regeneration.

Willner, Alan E., Steven and Kathryn Sample Chair in Engineering, department of electrical engineering, and associate director, Center for Photonics Technology, University of Southern California, Los Angeles. For significant advances in high-capacity optical communication systems.

Yarymovych, Michael I., president, Sarasota Space Associates, Osprey, Fla. For contributions to space programs and for leadership of national and international aerospace organizations.

New Foreign Members

Amano, Hiroshi, professor, department of electrical engineering and computer science, and director, Akasaki Research Center, Nagoya University, Nagoya, Japan. For development of p-type gallium nitride (GaN) doping, enabling blue semiconductor LEDs.

Ambani, Mukesh D., chairman and managing director, Reliance Industries Limited, Nariman Point, Mumbai, India. For engineering and business leadership in oil refineries, petrochemical products, and related industries.

Andersson, Göran, professor, electric power systems, Swiss Federal Institute of Technology, Zürich. For contributions to the development of high-voltage direct current (HVDC) technology and methods of power system voltage stability analysis.

Burland, John Boscawen, emeritus professor and senior research investigator, department of civil and environmental engineering, Imperial College, London. For contributions to geotechnical engineering and the design, construction, and preservation of civil infrastructure and heritage buildings.

Detournay, Emmanuel, professor, department of civil, environmental, and geo-engineering, University of Minnesota, Minneapolis. For advances in hydraulic fracturing and drilling dynamics.

Doi, Masao, professor, 1000 Foreign Expert Program, Beihang University, Beijing. For contributions to the rheology of polymeric liquids, especially the entanglement effect in concentrated solutions and melts.

Gumbsch, Peter, professor, Institute for Applied Materials & Computational Materials Science, Karlsruhe Institute of Technology, Karlsruhe, Germany. For multiscaled modelling techniques that improve fracture and deformation behavior of structural materials.

Hinton, Geoffrey E., distinguished emeritus professor, department of computer science, University of Toronto, and distinguished researcher, Google Inc., Toronto. For contributions to the theory and practice of artificial neural networks and their application to speech recognition and computer vision.

Hipel, Keith W., university professor, department of systems design engineering, University of Waterloo, Waterloo, Ontario. For development and application of conflict resolution techniques from a systems engineering perspective.

Jiang, Lei, dean, School of Chemistry and the Environment, Beihang University, and professor, Institute of Chemistry, Chinese Academy of Sciences, Beijing. For development and commercialization of superphilic and superphobic coatings.

Kalender, Willi A., professor and chairman, Institute of Medical Physics, University of Erlangen-Nurnberg, Erlangen, Germany. For development of spiral computed tomography methods that enable modern high-speed 3D medical imaging with X-rays.

Michel, Bruno, manager, advanced thermal packaging, IBM Zurich Research Laboratory, Zurich. For sustainable technologies to improve data centers and improved efficiencies of energy conversion systems.

Milberg, Joachim, retired chairman of the board, BMW AG Munich, and professor, Technical University of Munich, Munich. For development of computer integrated design and production engineering.

Pitroda, Satyan (Sam) G., chairman, The Pitroda Group, Oakbrook Terrace, Ill. For development of rural telecommunications infrastructure for India.

Reis, Rui Luis, professor of tissue engineering, regenerative medicine, and stem cells, department of polymer engineering, and director, 3B's Research Group, University of Minho, Guimarães, Portugal. For contributions to biomaterials and tissue engineering in regenerative medicine.

Rowe, R. Kerry, professor, department of civil engineering, Queen's University, Kingston, Ontario. For advances in knowledge of the performance of waste containment facilities.

Shoichet, Molly, university professor of chemical engineering and applied chemistry, chemistry, and biomaterials and biomedical engineering, University of Toronto, Toronto. For contributions to neural tissue engineering and design of polymers for cell and drug delivery.

Slingo, Julia, chief scientist, Met Office, Exeter, Devon, United Kingdom. For contributions to modelling of the Earth's climate system and for leadership in the weather and climate community.

Stoica, Peter, professor in systems modelling, department of information technology, Uppsala University, Uppsala, Sweden. For contributions to array signal processing in communications, sensing, and imaging.

Tikka, Kirsi, K., president and chief operating officer, ABS Europe Division, American Bureau of Shipping, London. For contributions leading to internationally recognized standards for ship structural design, construction, and maritime safety.

Whittle, Peter, Emeritus Churchill Professor of Mathematics for Operational Research, University of Cambridge, Cambridge, United Kingdom. For contributions to the mathematics of operations research and statistics.

Zhang, Yuzhuo Steve, chairman of the board, Shenhua Group Corp. Ltd., Dongcheng, Beijing. For development and commercialization of coal to chemicals/fuels and for leadership in environmental responsibility for the coal industry.

Founded in 1964, the U.S. National Academy of Engineering is a private, independent, nonprofit institution that provides engineering leadership in service to the nation. Its mission is to advance the well-being of the nation by promoting a vibrant engineering profession and by marshalling the expertise and insights of eminent engineers to provide independent advice to the federal government on matters involving engineering and technology.

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