News
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2010 CE Personal Achievement Award

The winners are waste management expert Tom McGowan and green chemistry pioneer Kris Mani

Much attention over the past two years has been focused on alternative energy and green chemistry. So it is particularly appropriate that *Chemical Engineering*'s (*CE*) 2010 Personal Achievement Award recognizes two individuals with expertise in those fields. Last month, at an award ceremony held at the ChemInnovations Conference and Exhibition in Houston, Tom McGowan, a longtime consultant in biomass energy, combustion, air pollution control and more, was joined by Kris Mani, developer of a novel process for potash, in accepting the awards from Rebekkah Marshall, *CE*'s editor-in-chief.

The aim of the *CE* Personal Achievement award, which the magazine has offered biennially since 1968, is to honor individuals for distinguished careers (see Table 1). It complements *CE*'s Kirkpatrick Award for Chemical Engineering Achievement, presented in alternate years, which honors companies — as opposed to individuals — for specific chemical-process technology.

The *CE* Awards have saluted excellence in diverse areas — research, development, design, plant operations, management and other activities. The distinction can emerge in less-ordinary ways, such as government service. The one major criterion is that the career must have related, fully or largely, to the use of chemical engineering principles in solving industrial, community or other problems.

Award winners Kris Mani (center left) and Tom McGowan (center right) posed with CE editor-in-chief Rebekkah Marshall and publisher Mike O'Rourke at ChemInnovations
Tony Ruppe

Thomas McGowan

Tom McGowan is president and founder of TMTS Associates Inc. (Atlanta, Ga.; www.tmtsassociates.com), a firm that specializes in thermal systems and air pollution control. Prior to founding TMTS, McGowan spent 10 years employed by the environmental services firm RMT/Four Nines Inc.

For 35 years, McGowan has made significant contributions in the areas of combustion, air-pollution control, solids handling and industrial ventilation, including drying, combustion and gasification of biomass. His functions have ranged from process and project engineering, to process safety and sales.

McGowan holds a master's degree in industrial management from the Georgia Institute of Technology (Atlanta, Ga.; www.gatech.edu) as well as B.S.ChE and M.S.ChE degrees from

Manhattan College (New York; www.mancol.edu). He is a registered engineer in Georgia and several other states and is OSHA 1910.120 Haswoper-certified.

The holder of a U.S. patent for an air-supply grate and ash-removal system for a wood gasifier (U.S. patent No. 4,601,730), McGowan has contributed to “Perry’s Chemical Engineers’ Handbook,” 7th ed., as well as the “McGraw Hill Standard Handbook of Hazardous Waste Treatment and Disposal,” 2nd ed.

McGowan is the primary author of the Air and Waste Management Association (AWMA; Pittsburgh, Pa.; www.awma.org) publication “NOx Control for Stationary Sources,” and a co-author of “The Industrial Wood Energy Handbook,” (Van Nostrand, 1984). He has authored numerous magazine articles and journal papers on a diverse range of topics, including energy, pollution control, waste treatment, thermal processes and solids handling.

CE received numerous pieces of correspondence in support of McGowan’s nomination for this award. Among the supporters is Don W. Green, emeritus distinguished professor of chemical and petroleum engineering at the University of Kansas (Lawrence, Kan.; www.ku.edu).

Green commented that “Tom has had a long and distinguished career as a chemical engineer. The breadth of technical and management activities in which he has engaged is very, very impressive. He exemplifies the best of chemical engineering practice.”

Gary Collison, principal at Golder Associates (Atlanta, Ga.; www.golder.com), says his company has relied on McGowan’s expertise in combustion and incineration, and knowledge of thermal treatment systems, biomass energy systems and thermal desorption technology. McGowan has helped guide the company and its clients through the labyrinth of environmental regulations, as well as to prepare contract documents for competitive bids, and select contractors, Collison wrote.

Collison’s letter of support also spoke to McGowan’s “recognized expertise in the combustion industry” and his “open and independent technical approach.”

Other supportive letters pointed out McGowan’s mix of technical knowledge, vast experience and ability to express himself clearly.

McGowan is an asset to the chemical and combustion engineering community, says Richard Trudeau, vice president at Environmental Soil Management Companies (ESMI; Fort Edward, N.Y.; www.esmicompanies.com), and his career has aided the advancement of technology across several fields.

Kris Mani

Dr. Kris Mani currently serves as president and chief executive officer of NSR Technologies, Inc. (Decatur, Ill.; www.nsr-tech.com), an innovative, research-driven chemical technology and manufacturing company, which he founded in 2006.

Mani was driven to found the company partially because he saw a need for technology that would lead to greener and cleaner production of hazardous chemicals. To meet this market opportunity, he raised more than $12 million from outside investors to fund the construction of the world’s first chemical plant to manufacture commercial grade caustic potash (45–50 wt.% potassium hydroxide solution) via membrane electrodialysis technology and chromatographic separation.

It is widely thought that financing and building the facility, particularly noteworthy in an era of offshore manufacturing and intense competition from suppliers in China and Southeast Asia, reflect not only Mani’s perseverance and commitment to innovation, but the strength of his technological achievements and business skill.

The processes used at NSR Technologies are substantially more environmentally friendly than alternative production methods. Currently, commercial strength KOH is manufactured via the chlor-alkali route.

NSR's technology is 40% more energy efficient than chlor-alkali production, and its process is suitable to manufacture potassium hydroxide or sodium hydroxide (caustic soda). Also, the process does not involve the production or combustion of chlorine gas (www.che.com/chementator/An-alternative-to-chlor-alkali_4956.html).

To develop the plant, which now generates millions of dollars in annual revenues, Mani used his considerable technical know-how, an innovative design and entrepreneurial spirit along with a raft of more than 40 process and equipment patents that Mani himself was instrumental in establishing.

It is the first innovative and viable alternative to KOH production since the development of chlor-alkali, more than a quarter century ago. NSR Technologies is one of only five KOH producers in the U.S., and the company competes against several Fortune 500 industrial companies.

Prior to establishing NSR, Mani held research and development, as well as management positions, at Archer Daniels Midland Co. (ADM; Decatur, Ill.; www.adm.com). He began his career as a researcher at Allied Signal Corp., (now Honeywell Inc.; Morristown, N.J.; www51.honeywell.com). During his tenure, he assumed positions of increasing management responsibility in electrodialysis and water purification.

Mani holds M.S.ChE. and Ph.D.ChE. degrees from Northwestern University (Evanston, Ill.; www.northwestern.edu).

"Mani has demonstrated a rare sense of expertise and commitment to advancing the profession and application of chemical engineering," says Thomas Binder, senior vice president for research at ADM in a letter of support.

Mani has "consistently demonstrated an exceptional technical core competency, coupled with a vision to multitask and work hard on complex and divergent projects. He embraces all projects with enthusiasm and has a deep interest to learn and develop, personally and professionally."

Binder adds that Mani's remarkable achievement of financing and building a commercial chemical plant "shows a deep commitment to innovation, technology and advancing the field of chemical engineering."

Table 1. Past winners of the *CE* Personal Achievement Award

Award year	Name(s) of winners	Affiliation(s) of winners	Basis of award / Area of expertise
1968	James Fair	Monsanto Co.	Fluid separations technology
	M.F. Gautreaux	Ethyl Corp.	Synthetic straight-chain alcohols
	H. Russell Sheely	Badger Co.	Fluidized-bed reactor design
	Claude Talley	Texaco Inc.	Stiff boron filament
1970	Page Buckley	Dupont	Process control
	John McWhirter	Union Carbide Corp.	Wastewater treatment
	Arthur Morgan Jr.	U.S. Dept. of Agriculture	Food processing

	William Tucker	The Lummus Co.	Petrochemical technology
	Robert Heitz (1st prize)	Dow Chemical Co.	Membrane technology
1972	Arnold Ayers (merit)	Allied Gulf Nuclear Services	Nuclear fuel processing
	Harold Kaufman Jr. (merit)	DCA Food Industries Inc.	Food production
	Alan Micheals (1st prize)	Alza Corp.	Pharmaceutical engineering
1974	Frank Trocino (merit)	Bohemia Inc.	Wood byproducts processing
	John Anderson (merit)	Union Carbide Corp.	Solid waste processing
	Donald Garrett	Garrett Energy R&D Inc.	Flash pyrollysis of coal
1976	Lee Gaumer	Air Products and Chemicals Inc.	Natural gas liquefaction
	Tom Nicklin	Peabody Holmes Ltd.	Sour gas; hydrocarbon reforming catalysts
	Morgan Sze	CE Lummus Co.	Catalytic hydroliquefaction
	Bernard S. Lee	Institute of Gas Technology	Coal-to-fuels and coal-to-chemicals processes
1978	Fernando Oré	Occidental Research Corp.	Oxy hemihydrate process
	Charles Sternling	Shell Development Co.	Mass transfer effects
	Utah Tsao	CE Lummus	Process commercialization (various projects)
1980	David K. Beavon	Ralph Parson Co.	Petroleum refining
1982	John M. Googin	Union Carbide Corp.	Nuclear chemistry
1984	William M. Burks	Stauffer Co.	Technology transfer and licensing
	Frederick A. Zenz	F.A. Zenz, Inc.	Fluid-particle dynamics
1986	A.D. Reichle	Exxon Research and Engineering Co.	Hydrocracking, fluid-catalytic cracking, catalyst technology
	Richard A. Conway	Union Carbide Corp.	Environmental stewardship
1988	L.K. Doraiswamy	National Chemistry Laboratory (India)	Reaction engineering
	Raphael Katzen	Consultant	Wood-chemical process development

	Robert Maddox	Oklahoma State University	Gas and liquid desulfurization
	Francis G. Dwyer	Mobil Research & Development Corp.	Zeolite catalysts
1990	George E. Keller	Union Carbide Corp.	Separations technology and chemical engineering education
	Trevor Kletz	Consultant	Chemical plant safety
1992	Joseph Jacobs	Jacobs Engineering Group	Managerial and technical accomplishments
	Bodo Linnhoff	Linnhoff March Ltd.	“Pinch” process technology
1994	Lowell B. Koppel	Setpoint Inc.	Process control and information-systems planning
1996	Paul Quencau	International Nickel Co.	Pyrometallurgy
	Ernest Henley	University of Houston	Computer-aided design
1998	Hanns Paul Hoffman	University of Erlangen-Nürnberg	Chemical engineering education and reaction engineering
	Dan Steinmeyer	Monsanto Co.	Polymer processing
2000	Michael Lockett	Praxair	Distillation and heat-transfer technologies
	John Pelton	Praxair	Crystal formation and growth, flame coating, waste-to-fuel, aluminum refining
2002	Lawrence Evans	Aspen Tech	Process modeling and simulation
	Henry Kister	Fluor Corp.	Distillation and absorption troubleshooting
2004	No award given	--	--
2006	No award given	--	--
2008	Brian W.S. Kolthammer	Dow Chemical Co.	Kinetic modeling of catalyst systems
	Shyam Lakshmanan	See Sen Chemical Bhd	Plant improvement and efficiency