

## **IEEE MEDAL OF HONOR RECIPIENTS**

2017	KORNELIS (KEES) A. SCHOUHAMER IMMINK President, Turing Machines Inc., Rotterdam, The Netherlands	"For pioneering contributions to video, audio, and data recording technology, including compact disc, DVD, and Blu-ray."
2016	G. DAVID FORNEY, JR. Adjunct Professor, Massachusetts Institute of Technology, Cambridge, Massachusetts, USA	"For pioneering contributions to the theory of error-correcting codes and the development of reliable high-speed data communications."
2015	MILDRED DRESSELHAUS Institute Professor, Massachusetts Institute of Technology, Cambridge, Massachusetts, USA	"For leadership and contributions across many fields of science and engineering."
2014	B. JAYANT BALIGA Distinguished University Professor, North Carolina State University, Raleigh, North Carolina, USA	"For the invention, implementation, and commercialization of power semiconductor devices with widespread benefits to society."
2013	IRWIN MARK JACOBS Founding Chairman and CEO Emeritus, Qualcomm, Inc., San Diego, CA, USA	"For leadership and fundamental contributions to digital communications and wireless technology."
2012	JOHN L. HENNESSY President, Stanford University, Stanford, CA, USA	"For pioneering the RISC processor architecture and for leadership in computer engineering and higher education."
2011	MORRIS CHANG Founder, Chairman and CEO, Taiwan Semiconductor Manufacturing Company, Taipei, Taiwan	"For outstanding leadership in the semiconductor industry."
2010	ANDREW J. VITERBI President, Viterbi Group Viterbi Group, LLC San Diego, CA, USA	"For seminal contributions to communications technology and theory."
2009	ROBERT H. DENNARD IBM Fellow, IBM Thomas J. Watson Research Center New York , NY, USA	"For invention of the single transistor Dynamic Random Access Memory and for developing scaling principles for integrated circuits."
2008	GORDON E. MOORE Chairman of the Board, Emeritus Intel Corp., Santa Clara, CA	"For pioneering technical roles in integrated-circuit processing, and leadership in the development of MOS memory, the microprocessor computer and the semiconductor industry."
2007	THOMAS KAILATH Stanford University, Dept of EE Stanford, CA	"For exceptional development of powerful algorithms in the fields of communications, computing, control and signal processing."

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2006	JAMES D. MEINDL Director and Pettit Chair Professor of Microelectronics, Microelectronics Research Center, Georgia Institute of Technology, Atlanta, GA	"For pioneering contributions to microelectronics, including low power, biomedical, physical limits and on-chip interconnect networks."
2005	JAMES L. FLANAGAN Vice President for Research Rutgers University Piscataway, NJ, USA	"For sustained leadership and outstanding contributions in speech technology."
2004	TADAHIRO SEKIMOTO Chairman Emeritus NEC Corporation Tokyo, Japan	"For contributions to digital satellite communications, promotion of information technology R&D, and technical and corporate leadership in computers and communications."
2003	NICK HOLONYAK, JR. Univ of Illinois at Urbana- Champaign, Urbana, IL, USA	"For a career of pioneering contributions to semiconductors, including the growth of semiconductor alloys and heterojunctions, and to visible light-emitting diodes and injection lasers."
2002	HERBERT KROEMER Univ of California Santa Barbara, CA	"For contributions to high-frequency transistors and hot-electron devices, especially heterostructure devices from heterostructure bipolar transistors to lasers, and their molecular beam epitaxy technology."
2001	HERWIG KOGELNIK Director, Photonics Research Lab & Electronics Research Lab Bell Labs, Holmdel, NJ	"For fundamental contributions to the science and technology of lasers and optoelectronics, and for leadership in research and development of photonics and lightwave communication systems."
2000	ANDREW S. GROVE Intel Corporation Santa Clara, CA	"For pioneering research in characterizing and modeling metal oxide semiconductor devices and technology, and leadership in the development of the modern semiconductor industry."
1999	CHARLES CONCORDIA Venice, FL	"For outstanding contributions in the area of Power System Dynamics which resulted in substantial improvements in planning, operation and security of extended power systems"
1998	DONALD O. PEDERSON University of California Berkeley, CA	"For creation of the SPICE Program, universally used for the computer aided design of circuits."
1997	GEORGE H. HEILMEIER Bellcore, Morristown, NJ	"For discovery and initial development of electro- optic effects in liquid crystals."

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1996	ROBERT M. METCALFE International Data Group Boston, MA	"For exemplary and sustained leadership in the development, standardization, and commercialization of Ethernet."
1995	LOTFI A. ZADEH Univ of California, Berkeley, CA	"For pioneering development of fuzzy logic and its many diverse applications."
1994	ALFRED Y. CHO AT&T Bell Labs, Murray Hill, NJ	"For seminal contributions to the development of molecular beam epitaxy."
1993	KARL JOHAN ÅSTRÖM Lund University Lund, Sweden	"For fundamental contributions to theory and applications of adaptive control technology."
1992	AMOS E. JOEL, JR. AT&T Bell Labs., S. Orange, NJ	"For fundamental contributions to and leadership in telecommunications switching systems."
1991	LEO ESAKI IBM Yorktown Heights, NY	"For contributions to and leadership in tunneling, semiconductor superlattices, and quantum wells."
1990	ROBERT G. GALLAGER M.I.T., Cambridge, MA	For fundamental contributions to communications coding techniques."
1989	C. KUMAR PATEL AT&T Bell Labs., Murray Hill, NJ	"For fundamental contributions to quantum electronics, including the carbon dioxide laser and the spin-flip Raman laser."
1988	CALVIN F. QUATE Stanford Univ., Stanford, CA	"For the invention and development of the scanning acoustic microscope."
1987	PAUL C. LAUTERBUR University of Illinois Urbana, IL	"For the discovery of nuclear magnetic resonance imaging."
1986	JACK ST. CLAIR KILBY Texas A&M University Dallas, TX	"For fundamental contributions to semiconductor integrated circuit technology."
1985	JOHN R. WHINNERY University of California Berkeley, CA	"For seminal contributions to the understanding and application of electromagnetic fields and waves to microwave, laser, and optical devices."
1984	NORMAN F. RAMSEY Harvard University Cambridge, MA	"For fundamental contributions to very high accuracy time and frequency standards exemplified by the cesium atomic clock and hydrogen maser oscillator."
1983	NICOLAAS BLOEMBERGEN Harvard University Cambridge, MA	"For pioneering contributions to Quantum Electronics including the invention of the three-level maser."
1982	JOHN WILDER TUKEY Princeton Univ., Princeton, NJ	"For his contributions to the spectral analysis of random processes and the fast Fourier transform algorithm."
1981	SIDNEY DARLINGTON Univ of New Hampshire Durham, NH	"For fundamental contributions to filtering and signal processing leading to chirp radar."

## IEEE MEDAL OF HONOR RECIPIENTS

1980	WILLIAM SHOCKLEY Stanford University Stanford, CA	"For the invention of the junction transistor, the analog and the junction field-effect transistor, and the theory underlying their operation."
1979	RICHARD BELLMAN Univ of Southern California Los Angeles, CA	"For contributions to decision processes and control system theory, particularly the creation and application of dynamic programming."
1978	ROBERT N. NOYCE INTEL Corp., Santa Clara, CA	"For his contributions to the silicon integrated circuit, a cornerstone of modern electronics."
1977	H. EARLE VAUGHAN Bell Telephone Labs. Murray Hill, NJ	"For his vision, technical contributions and leadership in the development of the first high-capacity pulse-code-modulation time-division telephone switching system."
1976	NO AWARD	
1975	JOHN R. PIERCE CA Institute of Technology Pasadena, CA	"For his pioneering concrete proposals and the realization of satellite communication experiments, and for contributions in theory and design of traveling wave tubes and in electron beam optics essential to this success."
1974	RUDOLF EMIL KALMAN University of Florida Gainesville, FL	"For pioneering modern methods in system theory, including concepts of controllability, observability, filtering, and algebraic structures."
1973	RUDOLF KOMPFFNER Bell Telephone Labs. Holmdel, NJ	"For a major contribution to world-wide communication through the conception of the traveling wave tube embodying a new principle of amplification."
1972	JAY W. FORRESTER M.I.T. Cambridge, MA	"For exceptional advances in the digital computer through his invention and application of the magnetic-core random-access memory, employing coincident current addressing."
1971	JOHN BARDEEN University of Illinois Urbana, IL	"For his profound contributions to the understanding of the conductivity of solids, to the invention of the transistor, and to the microscopic theory of superconductivity."
1970	DENNIS GABOR University of London London, England	"For his ingenious and exciting discovery and verification of the principles of holography."
1969	EDWARD L. GINZTON Varian Associates Palo Alto, CA	"For his outstanding contributions in advancing the technology of high power klystrons and their application, especially to linear particle accelerators."
1968	GORDON K. TEAL Texas Instruments	For his contributions to single crystal germanium and silicon technology and the single crystal grown

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	Dallas, TX	junction transistor.
1967	CHARLES H. TOWNES M.I.T Cambridge, MA	"For his significant contributions in the field of quantum electronics which have led to the maser and the laser."
1966	CLAUDE E. SHANNON M.I.T. Cambridge, MA	"For his development of a mathematical theory of communication which unified and significantly advanced the state of the art."
1965	NO AWARD	
1964	HAROLD A. WHEELER Wheeler Labs. Great Neck, NY	"For his analyses of the fundamental limitations on the resolution in television systems and on wideband amplifiers, and for his basic contributions to the theory and development of antennas, microwave elements, circuits, and receivers."
1963	JOHN H. HAMMOND, JR.	"For pioneering contributions to circuit theory and practice, to the radio control of missiles and to basic communication methods."
1963	GEORGE C. SOUTHWORTH	"For pioneering contributions to microwave radio physics, to radio astronomy, and to waveguide transmission."
1962	EDWARD V. APPLETON	"For his distinguished pioneer work in investigating the ionosphere by means of radio waves."
1961	ERNST A. GUILLEMIN	"For outstanding scientific and engineering achievements."
1960	HARRY NYQUIST	"For fundamental contributions to a quantitative understanding of thermal noise, data transmission and negative feedback."
1959	E. L. CHAFFEE	"For his outstanding research contributions and his dedication to training for leadership in radio engineering."
1958	A. W. HULL	"For outstanding scientific achievement and pioneering inventions and development in the field of electron tubes."
1957	J. A. STRATTON	"For his inspiring leadership and outstanding contributions to the development of radio engineering, as teacher, physicist, engineer, author and administrator."
1956	J. V. L. HOGAN	"For his contributions to the electronic field as a founder and builder of The Institute of Radio Engineers, for the long sequence of his inventions, and for his continuing activity in the development of devices and systems useful in the communications

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		art."
1955	H. T. FRIIS	"For his outstanding technical contributions in the expansion of the useful spectrum of radio frequencies, and for the inspiration and leadership he has given to young engineers."
1954	W. L. EVERITT	"For his distinguished career as author, educator and scientist; for his contributions in establishing electronics and communications as a major branch of electrical engineering; for his unselfish service to his country; for his leadership in the affairs of The Institute of Radio Engineers."
1953	J. M. MILLER	"In recognition of his pioneering contributions to the fundamentals of electron tube theory and measurements, to crystal controlled oscillators and to receiver development."
1952	W. R. G. BAKER	"In recognition of his outstanding direction of scientific and engineering projects; for his statesmanship in reconciling conflicting viewpoints and obtaining cooperative effort; and for his service to the Institute."
1951	V. K. ZWORYKIN	"For his outstanding contributions to the concept and development of electronic apparatus basic to modern television, and his scientific achievements that led to fundamental advances in the application of electronics to communications, to industry and to national security."
1950	F. E. TERMAN	"For his many contributions to the radio and electronic industry as teacher, author, scientist and administrator."
1949	RALPH BROWN	"For his extensive contributions to the field of radio and for his leadership in Institute affairs."
1948	L. C. F. HORLE	"For his contributions to the radio industry in standardization work, both in peace and war, particularly in the field of electron tubes, and for his guidance of a multiplicity of technical committees into effective action."
1946	R. V. L. HARTLEY	"For his early work on oscillating circuits employing triode tubes and likewise for his early recognition and clear exposition of the fundamental relationship between the total amount of information which may be transmitted over a transmission system of limited band-width and the time required."

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| 1945 | H. H. BEVERAGE    | "In recognition of his achievements in radio research and invention, of his practical applications of engineering developments that greatly extended and increased the efficiency of domestic and world-wide radio communications and of his devotion to the affairs of the Institute of Radio Engineers."  |
| 1944 | HARADEN PRATT     | "In recognition of his engineering contributions to the development of radio, of his work in the extension of communication facilities to distant lands, and of his constructive leadership in Institute affairs."  |
| 1943 | WILLIAM WILSON    | "For his achievements in the development of modern electronics, including its application to radio-telephony, and for his contributions to the welfare and work of the Institute."  |
| 1942 | A. H. TAYLOR      | "For his contributions to radio communication as an engineer and organizer, including pioneering work in the practical application of piezoelectric control to radio transmitters, early recognition and investigation of skip distances and other high-frequency wave-propagation problems, and many years of service to the government of the United States as an engineering executive of outstanding ability in directing the Radio Division of the Naval Research Laboratory." |
| 1941 | A. N. GOLDSMITH   | "For his contributions to radio research, engineering, and commercial development, his leadership in standardization, and his unceasing devotion to the establishment and upbuilding of the Institute and its PROCEEDINGS."   |
| 1940 | LLOYD ESPENSCHIED | "For his accomplishments as an engineer, as an inventor, as a pioneer in the development of radio telephony, and for his effective contributions to the progress of international radio coordination."  |
| 1939 | A. G. LEE         | "For his accomplishments in promoting international radio services and in fostering advances in the art and science of radio communication."  |
| 1938 | J. H. DELLINGER   | "For his contributions to the development of radio measurements and standards, his researches and discoveries of the relation between radio wave propagation and other natural phenomena, and his leadership in international conferences contributing to the world wide cooperation in telecommunications."  |

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1937	MELVILLE EASTHAM	"For his pioneer work in the field of radio measurements, his constructive influence on laboratory practice in communication engineering, and his unfailing support of the aims and ideals of the Institute."
1936	G. A. CAMPBELL	"For his contributions to the theory of electrical network."
1935	BALTH. VAN DER POL	"For his fundamental studies and contributions in the field of circuit theory and electromagnetic wave propagation phenomena."
1934	S. C. HOOPER	"For the orderly planning and systematic organization of radio communication in the Government Service with which he is associated, and the concomitant and resulting advances in the development of radio equipment and procedure."
1933	J. A. FLEMING	"For the conspicuous part he played in introducing physical and engineering principles into the radio art."
1932	A. E. KENNELLY	"For his studies of radio propagation phenomena and his contributions to the theory and measurement methods in the alternating current circuit field which now have extensive radio application."
1931	G. A. FERRIE	"For his pioneer work in the up building of radio communication in France and in the world, his long continued leadership in the communication field, and his outstanding contributions to the organization of international cooperation in radio."
1930	P. O. PEDERSEN	(No citation)
1929	G. W. PIERCE	"For his major contributions in the theory and operation of crystal detectors, piezoelectric-crystals and magnetostriction frequency controls and magnetostriction devices for the production of sound; and for his instructional leadership as a teacher and as a writer of important texts in the electric wave field."
1928	JONATHAN ZENNECK	"For his contribution to original researches in radio circuit performance and to the scientific and educational contributions to the literature of the pioneer radio art."
1927	L. W. AUSTIN	"For his pioneer work in the quantitative measurement and correlation of factors involved in radio wave transmission."
1926	G.W. PICKARD	"For his contributions as to crystal detectors, coil



## IEEE MEDAL OF HONOR RECIPIENTS

		antennas, wave propagation and atmospheric disturbances."
1924	M. I. PUPIN	"In recognition of his fundamental contributions in the field of electrical tuning and the rectification of alternating currents used for signaling purposes."
1923	JOHN STONE-STONE	"For his valuable pioneer contributions to the radio art."
1922	LEE DE FOREST	"For his major contributions to the communications arts and sciences, as particularly exemplified by his invention of that outstandingly significant device: the three electrode vacuum tube, and his work in the fields of radio telephonic transmission and reception."
1921	R. A. FESSENDEN	(No citation)
1920	GUGLIELMO MARCONI	"In recognition of his pioneer work in radio telegraphy."
1919	E. F. W. ALEXANDERSON	"In recognition of his pioneer accomplishments in the field of long distance radio communication, including his development of the radio frequency alternator which bears his name, a magnetic amplifier permitting effective modulation of the output of such an alternator, and a cascade radio frequency vacuum tube amplifier yielding exceptional total amplification."
1917	E. H. ARMSTRONG	"In recognition of his work and publications dealing with the action of the oscillating and non-oscillating audio."