

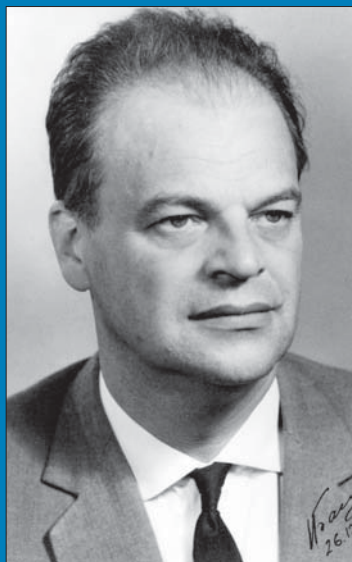
Theodore Harold Maiman

1927 - 2007, United States
Maiman was the inventor of the first laser, a ruby laser which he demonstrated on May 16, 1960. Five decades after this historic event, ruby lasers are still in commercial usage. In 1987 Maiman received the Japan Prize for the invention of the first laser.



Charles Hard Townes

Born 1915, United States
Townes is known for his work on the theory and application of the maser, on which he got the fundamental patent, and other work in quantum electronics connected with both maser and laser devices. He shared the Nobel Prize in 1964 with Nikolay G. Basov and Alexander M. Prokhorov for "fundamental work in the field of quantum electronics which has led to the construction of oscillators and amplifiers based on the laser-maser principle."



Nicolay Gennadiyevich Basov

1922 - 2001, Russia
Basov shared the 1964 Nobel Prize in Physics with Alexander Prokhorov and Charles Townes for his "fundamental work in the field of quantum electronics which has led to the construction of oscillators and amplifiers based on the laser-maser principle." He also invented the first excimer laser in 1970.



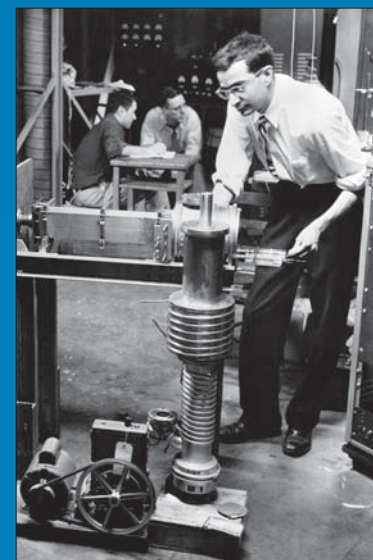
Alexander Mikhaylovich Prokhorov

1916 - 2002, Russia
Prokhorov was a physicist and professor at the Moscow State University. He shared the 1964 Nobel Prize in Physics with Nicolay Basov and Charles Townes for his "fundamental work in the field of quantum electronics which has led to the construction of oscillators and amplifiers based on the laser-maser principle."



Arthur Leonard Schawlow

1921 - 1999, United States
Schawlow is noted for his work on the development and use of lasers. He collaborated with Charles Townes in early work on maser principles. Schawlow received the 1981 Nobel Prize for Physics with Nicolaas Bloembergen for their independent research in laser spectroscopy.



Ali Mortimer Javan

Born 1926, Iran
Javan received U.S. patent 3,149,290 together with William Bennett for the "Gas Optical Maser." The gas laser was the first continuous-light laser and the first laser to operate "on the principle of converting electrical energy to a laser light output."



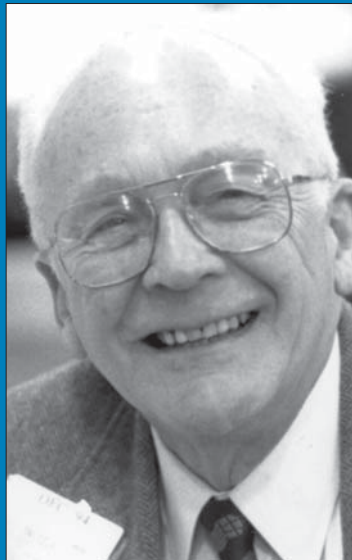
Robert N. Hall

Born 1919, United States
Hall demonstrated the first semiconductor laser in 1962. He also invented a type of magnetron commonly used in microwave ovens and developed rectifiers for power transmission.



William T. Silfvast

Born 1937, United States
Silfvast is renowned for the number of new lasers he discovered. As a doctoral student he produced laser action for the first time in the vapor of nine elements. He also has done notable work in metal vapors, and demonstrated over 100 recombination lasers and laser action in laser-produced plasmas.



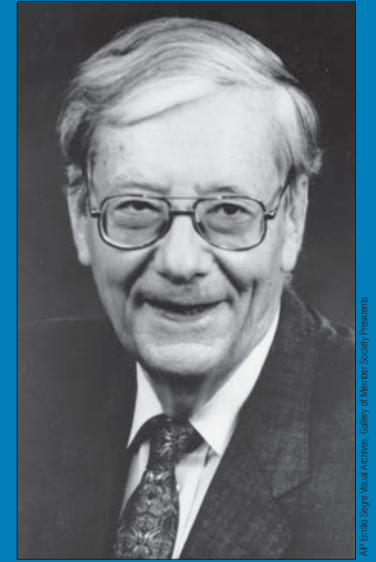
Elias Snitzer

Born 1925, United States
Snitzer demonstrated the first optical fiber laser in 1961. Snitzer proved the suitability of glass for use as an active laser material. His inventions include both neodymium- and erbium-doped laser glass. Snitzer co-developed the first fiber optic laser amplifier with laser glass.



Gordon Gould

1920 - 2005, United States
Gould was awarded U.S. Patent 4,053,845 in 1977 for the optically pumped laser amplifier. Gould's laboratory notebook from 1957 contained the first written documentation for making a viable laser. His analysis and suggested applications for the laser appear under the heading "Some rough calculations on the feasibility of a LASER: Light Amplification by Stimulated Emission of Radiation"—the first recorded use of this acronym.



Nicolaas Bloembergen

Born 1920, The Netherlands
Bloembergen, a Dutch-born American physicist, shared the 1981 Nobel Prize in Physics with Arthur Schawlow and Kai Siegbahn for their work in laser spectroscopy; the study of atomic systems using laser light. Dr. Bloembergen was a pioneer in the field of Nonlinear Optics. He received the 1974 National Medal of Science for Physical Science "for pioneering applications of magnetic resonance to the study of condensed matter and for subsequent scientific investigations and inventions concerning the interaction of matter with coherent radiation."



C. Kumar N. Patel

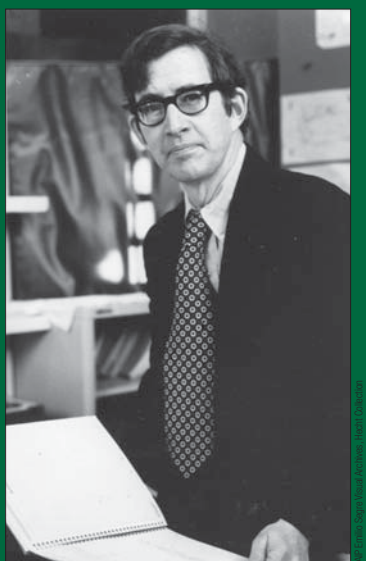
Born 1938, India
Patel developed the carbon dioxide laser in 1963; it is now widely used in industry for cutting and welding, as a laser scalpel in surgery, and in laser skin resurfacing. He currently holds 36 U.S. patents relating to lasers and laser applications.

Building upon the innovation of the past
Advancing the laser into the future



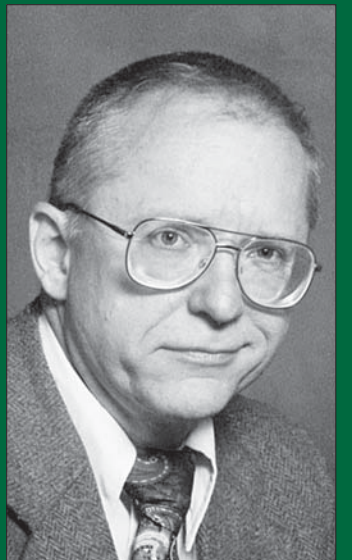
Gérard Mourou

Born 1944, France
Gérard Mourou is a French pioneer in the field of electrical engineering and lasers. Along with Donna Strickland, he co-invented a technique called chirped pulse amplification, or CPA, which was later used to create ultrashort-pulse, very high-intensity (terawatt) laser pulses.



Peter Sorokin

Born 1931, United States
Sorokin has made significant contributions to the development of lasers and quantum electronics, including the invention of the dye laser in 1966. He also pioneered ultraviolet lasers with the ability to tune to any wavelength of light. Peter Sorokin is an IBM Fellow Emeritus.



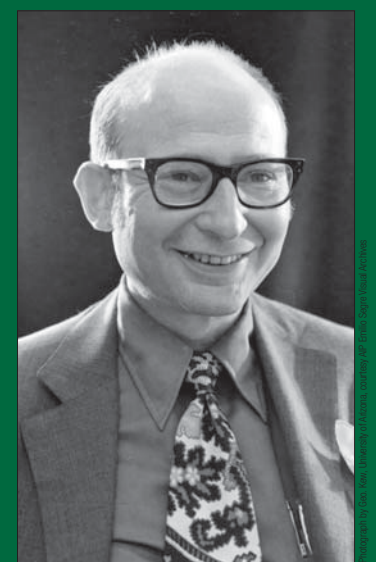
John Lewis Hall

Born 1934, United States
Hall shared the 2005 Nobel Prize in Physics with Theodor Hänsch and Roy J. Glauber for "contributions to the development of laser-based precision spectroscopy, including the optical frequency comb technique." The "frequency comb synthesizer" developed by Hänsch made it possible for the first time to measure with extreme precision the number of light oscillations per second.



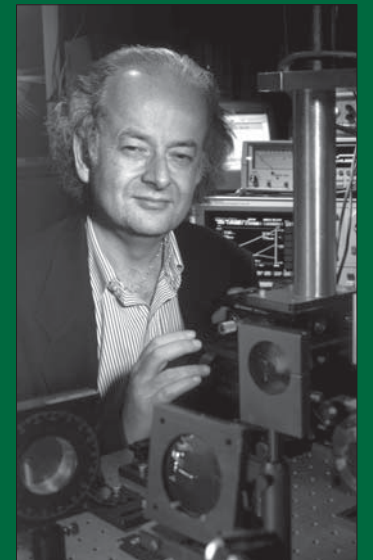
Theodor Wolfgang Hänsch

Born 1941, Germany
Hänsch shared the 2005 Nobel Prize in Physics with John L. Hall and Roy J. Glauber for "contributions to the development of laser-based precision spectroscopy, including the optical frequency comb technique." The "frequency comb synthesizer" developed by Hänsch made it possible for the first time to measure with extreme precision the number of light oscillations per second.



Peter A. Franken

1928 - 1999, United States
Franken, an American physicist, is considered to be the father of non-linear optics. The discovery of non-linear optics occurred in 1961 when Franken focused a high-powered ruby laser onto a quartz crystal, generating ultraviolet light mixed with transmitted light. Franken also demonstrated second harmonic generation, a non-linear optical process.



Federico Capasso

Born 1949, Italy
Capasso is known for his work as a prominent applied physicist and as one of the inventors of the quantum cascade laser during his work at Bell Laboratories. He has co-authored over 300 papers, edited four volumes, and holds over 50 U.S. patents.



Valentin Gapontsev

Born 1939, Russia
Gapontsev is recognized as "the father of the fiber-laser industry as it is known today, who has pioneered the field in five decades of academic work and as the founder and CEO of a global technology company (IG) that continues to transform the laser industry." Citation, Arthur L. Schawlow Award Presented to Valentin Gapontsev in 2009



David N. Payne

Born 1944, England
Payne led the team at Southampton that invented the erbium-doped fiber amplifier, a type of optical amplifier. Payne's work in fiber fabrication in the 1970s resulted in many of the special fibers used today.



Adolf Giesen

Born 1946, Germany
Giesen demonstrated the disk laser in 1993. The thin-disk laser is a diode-pumped solid-state laser that produces high output power with both high efficiency and excellent beam quality, overcoming the thermal limitations of conventional laser rods. Since the first demonstration, the continuous-wave output power extracted from a single disk has increased to more than 5 kW.



Ahmed Zewail

Born 1946, Egypt
Zewail is the winner of the 1999 Nobel Prize in Chemistry for his work on femtochemistry. He also has been nominated and will participate in President Barack Obama's Presidential Council of Advisors on Science and Technology (PCAST).



John M.J. Madey

Born 1943, United States
Madey invented and developed the FEL in 1971, a relativistic electron tube that made use of the open optical resonator. An important step in FEL development came in 1976 when Madey and his co-workers at Stanford University measured gain from an FEL configured as an amplifier at 10- μ m wavelength.



Margaret Murnane

Born 1959, Ireland
Murnane is recognized as a laser pioneer for her work in ultra-fast laser science and for the development of ultra-fast optical and coherent soft X-ray sources. In 2000, Murnane won the prestigious MacArthur Fellowship. Her work has had valuable applications in optical technology, faster computer chips, and biological and medical imaging.



Join the laser community in celebrating LaserFest—a year-long tribute to 50 years of laser innovation

