

# John L. Hall: Long-time NIST Physicist Wins Nobel Prize

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John (Jan) L. Hall, a scientist emeritus of the National Institute of Standards and Technology Quantum Physics Division and a fellow of JILA, a joint institute of NIST and the University of Colorado, Boulder, has won the Nobel Prize along with Theodor W. Hänsch of the Max-Planck-Institut für Quantenoptik, Garching and Ludwig-Maximilians-Universität, Munich, Germany, and Roy J. Glauber of Harvard University.

Hall and Hänsch were awarded half the Prize for their contributions to the development of laser-based precision spectroscopy, including the optical frequency comb technique. The other half of the Prize was awarded to Glauber for his contribution to the quantum theory of optical coherence.

According to the Academy, the important contributions by Hall and Hänsch have made it possible to measure frequencies with an accuracy of 15 digits. Lasers with extremely sharp colors can now be constructed, and with the frequency comb technique precise readings can be made of light of all colors. For example, this technique makes it possible to study the stability of the constants of nature over time and to develop extremely accurate clocks and improved global positioning system (GPS) technology.

Hall began his career at NIST as a National Research Council (NRC) Postdoctoral Fellow in 1961. He joined the NIST staff as a physicist in 1962, and was named a senior scientist in 1971. In 1964, he became a Fellow of JILA. Hall retired from NIST in 2004 and currently has a part-time appointment with CU-Boulder. He has received many honors during his career, including the Department of Commerce Gold Medal (individually in 1969 and as part of a group in 1974 and 2002). He has been a member of the National Academy of Sciences since 1984.

"All of us at NIST are extremely proud to count Jan Hall as one of our own," said NIST Director William Jeffrey. "His work over the past four decades gave us a firm foundation in precision laser technology—now an essential tool of advanced physics—and has helped keep us at the forefront of the field. We are equally grateful for his life-long work in training and mentoring new generations of inspired physicists, several of whom we now include among our star researchers. On behalf of all of NIST, I congratulate Jan and his colleagues Ted Hänsch and Roy Glauber for this well-deserved recognition."

Source: NIST

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