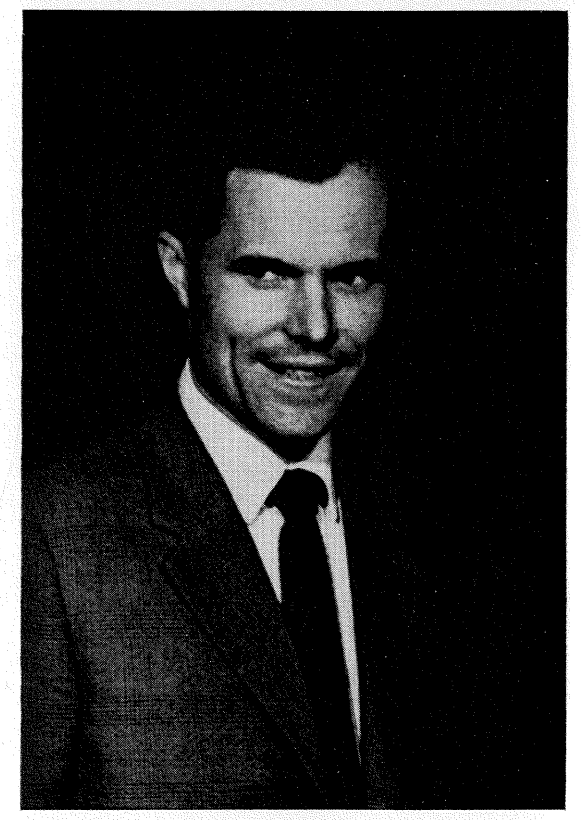

Rudolf L. Mössbauer

Nobel Prizewinner

Rudolf L. Mössbauer, senior research fellow in physics at Caltech, is one of two scientists to receive the 1961 Nobel Prize in Physics. Dr. Mössbauer was awarded the prize for his discovery of the radiation effect that bears his name. The other half of the $48,300 physics prize goes to Robert Hofstadter of Stanford University for his discoveries about the structure of nucleons.

The Mössbauer effect is a remarkably accurate yardstick that enables physicists to measure precisely, for the first time, the effects of natural forces such as gravity, electricity, and magnetism, on infinitely small particles, such as photons and parts of the nuclei of atoms.

Basically, the Mössbauer effect states that under certain conditions both the atomic nucleus and the whole crystal that contains it will recoil when the nucleus emits or absorbs a gamma ray. Emitting and absorbing nuclei, if built into crystals, are, therefore, exactly in resonance. With the Mössbauer effect, physicists can observe this nuclear resonance more sharply than ever before, and can use it for extremely precise measurements of gravity, magnetism, and the structure of the nucleus.

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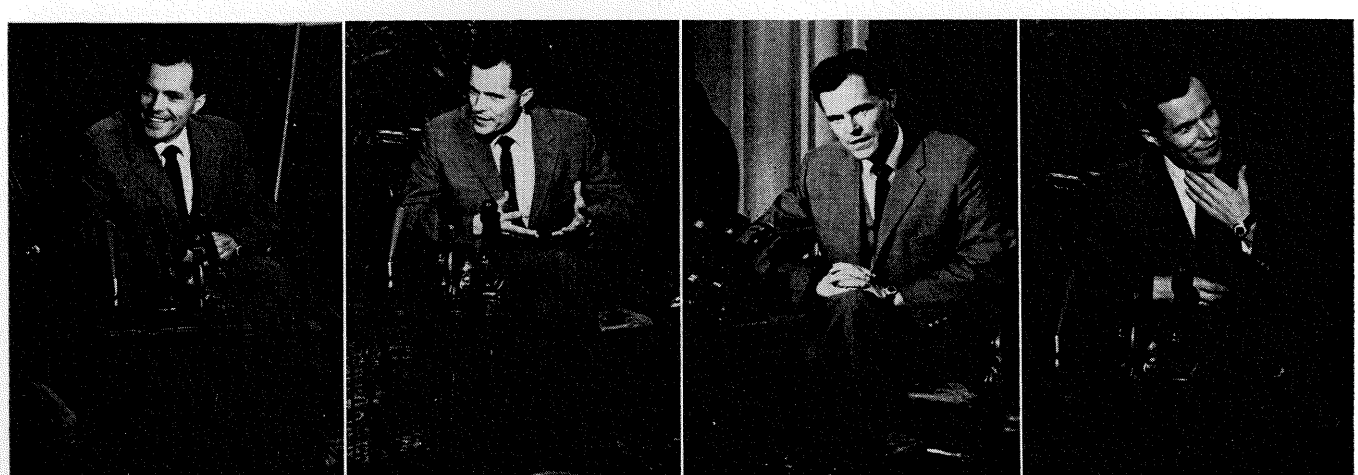
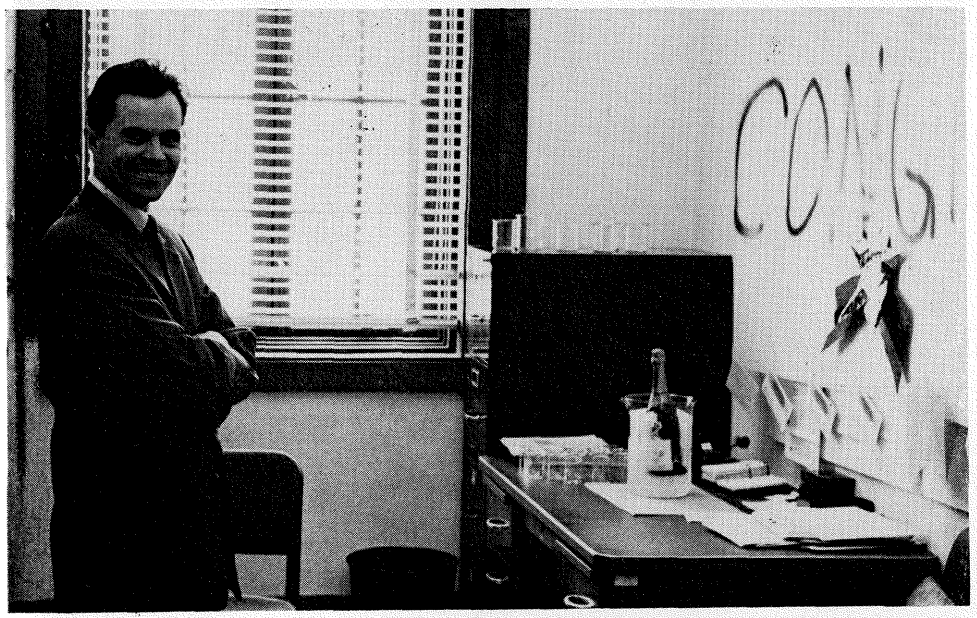
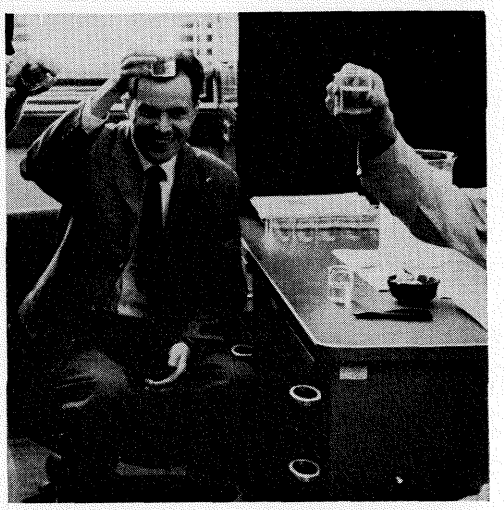


Mössbauer meets the press after being notified of his award.



Office celebration for a Nobel laureate.



The Mössbauer effect enables physicists to test phases of Einstein's theory of relativity, and it has already confirmed Einstein's prediction that gravity can change the frequency of a light beam. It is being used in laboratories in several countries to resolve mysteries in the fields of solid state physics and nuclear physics. And it may also help to make manned space flights safer.

At Caltech Dr. Mössbauer and his colleagues are using his effect to study the internal magnetic and electric fields in isotopes of the rare earth elements. Information is being obtained about the complex electrical interactions in the crystalline structure of these compounds, and about the electric and magnetic properties of excited nuclear states. The work is supported by the Atomic Energy Commission.

Dr. Mössbauer has been at Caltech since March 1960, on a two-year leave of absence from the Institute for Technical Physics at Munich, Germany.

He was born in Munich on January 31, 1929, and received his academic degrees there. His PhD was awarded magna cum laude by the Institute for Technical Physics in 1957. Dr. Mössbauer worked as a research fellow at the Institute until he was granted a leave of absence to come to Caltech.

Formerly a mathematician, Mössbauer started his gamma ray research at the Institute for Technical Physics in 1953 when his supervisor suggested that he enter this new field. He made his discovery while working for his doctor's degree.

Mössbauer has received three other prizes for his research: The Research Corporation Award in 1960; the Roentgenpreis from the University of Giessen, Germany, last July; and the Elliott Cresson Medal, which he received from the Franklin Institute of Philadelphia last month. The Cresson Medal was awarded for "his discovery of recoilless emission, and for his penetrating analysis and understanding of the phenomenon which has led to a tool of unbelievable discrimination now widely employed in many facets of physical research to make measurements believed impossible as little as ten years ago."