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Darleane C. Hoffman, transuranium element pioneer, dies at age 98

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Hoffman

Nuclear chemist Darleane D. Hoffman, who was renowned for her research on transuranium elements that advanced the understanding of nuclear fission, died on September 4 at her home in Menlo Park, Calif. She was 98.

Iowa origins: Hoffman was born on November 8, 1926, in Terril, Ia. She attended Iowa State University, where she earned a bachelor's degree in chemistry in 1948 and a doctorate in physical (or nuclear) chemistry in 1951. She then began working as a chemist at Oak Ridge National Laboratory.

Los Alamos research: In 1953, Hoffman began a research position at Los Alamos National Laboratory, where she conducted pioneering work on spontaneous fission. She served as the lab's first female division leader in charge of the Chemistry and Nuclear Chemistry Division.

In 1971, she discovered small amounts of plutonium-244 in a rock formation—thereby overturning the widely held belief that transuranium elements (elements with atomic numbers greater than 92) did not exist in nature. She also isolated and characterized fermium-257 in her research, which led to greater understanding of the nuclear fission process.

Berkeley work: Hoffman moved to Lawrence Berkeley National Laboratory and the University of California–Berkeley in 1984, where she was a leader in the lab's Heavy Element and

Radioactivity Group. She was part of the Berkeley team that confirmed the discovery of element 106, seaborgium, which was named after her Berkeley research colleague Glenn Seaborg.

From 1991 to 1996, Hoffman served as charter director of the Seaborg Institute for Transactinium Science, which she also cofounded, located at Lawrence Livermore National Laboratory.

Advisory boards: During her career, Hoffman served on a number of prominent government advisory boards. These included the National Academy of Sciences' Board on Radioactive Waste and the National Research Council's Committee on Nuclear and Radiochemistry and Board of Radioactive Waste Management.

Awards: Hoffman was honored with numerous awards during her life, including the highly prestigious National Medal of Science in 1997, which was presented in recognition of several of her achievements, including the discovery of Pu-244 in nature and the discovery of a phenomenon called symmetric mass division, a form of spontaneous fission that results in two "daughter" nuclei that are nearly equal in mass.

In 2000, she became the second woman to receive the Priestley Medal from the American Chemical Society—that organization's highest honor. In 2023, the Department of Energy honored Hoffman with the Enrico Fermi Presidential Award for her many discoveries that advanced nuclear chemistry and radiochemistry and for her distinguished service to the DOE's missions.

Tags: darleane hoffman | enrico fermi presidential award | lanl | lbnl | national medal of science | seaborgium | transuranium | university of california berkeley