

Work begun at the Lab goes on to win a Nobel Prize

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Clyde

Cowan and Frederick Reines, two of the detectors of an elusive particle called the neutrino, spent time at the Lab. Reines arrived here for the Manhattan Project in 1944, and Cowan came to Los Alamos in 1949 after obtaining his PhD. The two worked together to learn about the long-hypothesized particle.

First theorized by Wolfgang Pauli in 1930, neutrinos are now known to be plentiful in our universe, but their existence was not proven until the work done by Reines and Cowan in 1956. The work began at the Lab and was carried out at the Savannah River Plant (another federal government laboratory) later on. As much major research is done in collaboration, the two, along with F. B. Harrison, H. W. Kruse, and A. D. McGuire (all Savannah River scientists), published a paper on the detection of the neutrino in the July 1956 issue of *Science*. The paper was titled "[Detection of the Free Neutrino: A Confirmation.](#)"

While Cowan died in 1974, Reines went on to win the [Nobel Prize in Physics in 1995](#) for the detection of the neutrino. The Museum exhibit, currently located in our Tech Lab,

includes a certificate related to the prize, some laboratory notations about their work, and an official replica of the Nobel Prize medal itself.

While the work, to some, might sound like ancient history, neutrino research continues at Los Alamos. In fact, scientists here and elsewhere are sharing a \$3-million 2016 Breakthrough Prize in Fundamental Physics for work on the determination that neutrinos have mass. The Breakthrough Prize was founded in 2012 by venture capitalist Yuri Milner and has been dubbed the “XXI Century Nobel” by the media.

For more information on the contributions the Lab has made to neutrino understanding, view the 1997 issue of *Los Alamos Science* titled “[Celebrating the Neutrino.](#)”

1350 Central Avenue
Los Alamos, NM 87545



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(505) 667-4444
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