

Clarifications on the Chien-Shiung Wu feature

The article “Chien-Shiung Wu’s trailblazing experiments in particle physics” (PHYSICS TODAY, December 2024, page 28) says Elena Aprile “was the second woman to join the [Columbia University physics] department, more than four decades after Wu.” Many former Columbia physics students, however, know this to be untrue, having taken the class we affectionately called “Lucy Lab,” designed and supervised by Lucy J. Hayner. Her PHYSICS TODAY obituary (January 1972, page 97) describes Hayner as “a professor emeritus of physics at Columbia University.” It says she received a master’s degree at Columbia in 1920 and that “after returning to Columbia in 1929, she taught in and later headed the Ernest Kempton Adams Laboratory.” As a Columbia undergraduate in the early 1960s, I took Hayner’s lab class and Wu’s course in nuclear physics. Thus, I experienced the teaching of two women on the Columbia physics faculty at a time when Aprile—who was born in 1954—was not even 10 years old.

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CHIEN-SHIUNG WU at Columbia University, sometime around 1975. (Photo from American Association of Physics Teachers [AAPT], courtesy of the AIP Emilio Segrè Visual Archives.)

physics: the demonstration that the weak interaction violates parity conservation. The article’s brief mention of the test of hidden-variable theories, however, needs more complete referencing.

Following John Bell’s celebrated 1964 work in which he derived an inequality that must be satisfied by local hidden-variable theories, it was a paper by John Clauser, Michael Horne, Abner Shimony, and Richard Holt that proposed a practicable experiment that could test the Bell inequalities.¹ As a postdoc at the University of California, Berkeley, Clauser brought that idea to Stuart Freedman, who was then a UC Berkeley graduate student under the

guidance of Eugene Commins. It was Freedman who conducted the experiment as his thesis, and the work was published in *Physical Review Letters* in 1972.² The experiment provided compelling evidence that local hidden-variable theories were wrong.

As Kam, Zhang, and Feng note in their article, Alain Aspect, Clauser, and Anton Zeilinger received the 2022 Nobel Prize in Physics “for experiments with entangled photons, establishing the violation of Bell inequalities and pioneering quantum information science.” (For additional information, see PHYSICS TODAY, December 2022, page 14.) Just as Wu died without receiving a Nobel Prize

“Chien-Shiung Wu’s trailblazing experiments in particle physics” by Chon-Fai Kam, Cheng-Ning Zhang, and Da Hsuan Feng (PHYSICS TODAY, December 2024, page 28) helps to correct the scientific community’s failure to give appropriately enormous credit to Wu for her many accomplishments, especially her leadership of what may well be described as the most important experiment in the history of particle