

Aaldert Hendrik Wapstra 1922–2006

It is with great sadness that we say adieu to our colleague Aaldert Wapstra, “grand inquisitor of the atomic masses”, who passed away at home in Amsterdam on 4 December 2006.

Aaldert Wapstra’s career in nuclear physics spanned five decades from 1953 when he received his doctorate from the University of Amsterdam and became professor at Delft Technical University in 1955. In 1963, he joined the executive board of the Institute of Nuclear Physics Research (IKO), which later became the premier subatomic physics institute of the Netherlands: NIKHEF. Succeeding Godfried Van Lieshout in 1971, he was director of NIKHEF until 1982. Though he retired in 1987, his active contribution to the “Atomic Mass Evaluation” (AME) continued through 2005.

The mass of an atom, when measured accurately enough, yields the nuclear binding energy, which in turn has important implications in subatomic physics. Because masses can be determined via the different techniques of decay spectroscopy, reactions or mass spectrometry, the production of a mass table requires a meticulous and rigorous evaluation procedure. Aaldert first provided such an evaluation at the first international conference dedicated to atomic masses. With F Everling, LA König and JHE Mattauch, he established the



procedure for producing – and testing the consistency of – the different results.

Since that time, the AME has been updated at regular intervals with the 2003 evaluation, the most recently published, comprising reliable masses for some 3000 nuclides. It is the most cited reference in nuclear physics and forms a unique, common benchmark for nuclear theory. The evaluation requires great fluency in the technical methods of measuring masses. In this regard, Aaldert was extremely interested in various breeds of mass spectrometers, and offered such pearls of wisdom as: “My experience, in the course of 55 years in evaluating data, has been that precision measurements with non-focusing instruments should be considered with a healthy distrust.”

Aaldert also helped to formulate the definition of the mass unit, designated as u for “unified” unit, equal to a twelfth the mass of ^{12}C . He liked to joke about its singular

name: “Let us be firm in retaining the u , let us even make it a double- u ”, as a reference to the initial letter of his last name.

At the 2004 conference of Exotic Nuclei and Atomic Masses – 44 years after attending the original conference on masses – Aaldert received the SUNAMCO medal of the Symbols, Units, Nomenclature, Atomic Masses and fundamental Constants commission of the International Union of Pure and Applied Physics, in recognition of his long commitment and numerous achievements in the field. It was fitting that he received an award that he himself had presented to others on previous occasions.

In addition to his technical and scientific skills, Aaldert loved culture. An accomplished pianist, he was particularly fond of music and had very modern taste, with the work of Messiaen figuring prominently. He was also a dedicated family man, composing poems for his grandchildren for the feast of St Nicholas each year.

Aaldert’s fine blend of culture and scientific acumen made it a pleasure to receive him in Orsay, where he visited regularly for discussions concerning the evaluation. His experience and authority were less impressive only than his profound modesty. It will be difficult to carry on without him. *Georges Audi and David Lunney, CSNSM-Orsay.*