Beate Naroska 1943–2008

Beate Naroska, particle physicist, prominent scientist, engaging teacher and an enthusiastic mentor for many young researchers, passed away on 17 February this year.

After studying physics at Göttingen, Beate obtained her diploma and PhD from the University of Hamburg with the measurement of photoproduction on protons and nuclei, in work performed in the group of Martin Teucher using DESY’s bubble and streamer chambers. At HERA, 30 years later, she was able to extend these measurements to much higher energies.

From 1971 to 1978 she worked at CERN’s Intersecting Storage Rings in Carlo Rubbia’s group. She concentrated on the high-energy features of proton–proton scattering, in particular on soft diffraction, and worked on the development of multiwire proportional chambers with two-dimensional readout by charge division and timing.

In 1978 she returned to DESY and joined the JADE experiment shortly before the e+e− collider, PETRA, started operation. She took responsibility for the time-of-flight (ToF) system that was needed to suppress the cosmic-ray background and led the project to perfection. The ToF system, together with JADE’s large muon chambers, allowed her to make a precision measurement of the forward–backward asymmetry of μ-pair production that pointed to a large Z-mass, well before the direct-mass measurement at the SpS. By the mid-1980s PETRA achieved centre-of-mass energies close to 50 GeV and the asymmetry measurements were extended to υ- and b-production. They confirmed electroweak theory beautifully and proved that the b-quark is a member of a doublet. Thus it was clear: the top-quark had to exist.

Beate summarized the main physics results from the PETRA collider in the paper “e+e− Physics with the JADE Detector at PETRA”, published in Physics Reports (B Naroska 1987 Phys Rep 148 67). This was accepted as habilitation thesis at the University of Hamburg, where she became professor for experimental physics in 1989. She was an enthusiastic and dedicated teacher, putting high demands on her students, and attracted many of them to make their diploma- and PhD-theses in her group.

At HERA Beate was one of the leading scientists of the H1 collaboration. She concentrated on the study of the strong force using heavy quark production. Her preferred experimental tool remained the lepton tag, be it for J/Ψ and Y-production or for open charm and beauty tagging. She authored numerous publications on the photo- and electro-production of vector mesons and heavy quarks as well as on the charm structure function of the proton.

In 2000 she spent a sabbatical semester at CERN on the HARPE experiment and contributed to the precise measurement of particle production cross-sections with high relevance for neutrino beams. She has been instrumental in starting Hamburg University’s participation in the OPERA experiment at Gran Sasso that uses the CERN Neutrinos to Gran Sasso beam.

Beate served on numerous advisory committees, such as the DESY Scientific Council until 2007, the Funding Committee for Particle Physics of the German Ministry of Science, and the Selection Committee of the Alexander von Humboldt Foundation.

Her untimely death was a very sad event and a great loss to many of us who will miss a dear friend.

Her friends and colleagues at Hamburg.