

Inside Story

Maurice Lévy and his impact on science

Maurice Lévy, who was 90 in September, has had a long and influential career in science, in particular in France.

Like many prominent French intellectuals, including three Nobel laureates, Maurice Lévy came from North Africa, where he was born in Algeria. He had an incredibly rich and diverse career. During the Second World War, he studied at the University of Algiers, gained his PhD in molecular optics in Paris, moved to Manchester, where he switched to theoretical physics, and then to the Institute of Advanced Studies in Princeton, where he considerably impressed Robert Oppenheimer. On his return to France in 1952, Lévy launched the first French group of theoretical physics at the École normale supérieure and became a professor at the University of Paris. The group moved to Orsay in 1959 but Lévy returned to Paris in 1971 as a professor at the University of Paris VI. This professorship was interrupted by several important responsibilities: scientific advisor at the French embassy in Washington DC; president of the Centre National d'Études Spatiales, where he launched the programme for the construction of Ariane launchers; president of the European Satellite Research Organization and the European Space Agency; founder and first president of the "Cité des Sciences de La Villette". After his retirement from the university he continued to have advisory and business activities.

Lévy played a considerable role in the resurrection of French theoretical physics after the war. Several people – in Saclay, the École Polytechnique and the Radium Institute – were aware of the dismal situation and tried to do something about it. Cécile Morette-DeWitt started the Les Houches theoretical summer school in 1951 and invited Lévy to lecture there in 1952. At this session, Lévy told Loup Verlet and myself that Yves Rocard had proposed the creation of a theoretical physics group at the École normale. He asked us if we were interested



On 21 October 2002, the Institut d'Études Scientifiques de Cargèse in Corsica inaugurated a new amphitheatre named in honour of its founder, Maurice Lévy (left), seen here with André Martin. (Image credit: Schu Martin.)

in joining him and we accepted immediately, becoming the first two members of the group. A number of talented "normaliens" joined the group – Bernard Jancovici, Michel Gourdin, Madeleine Collin, Claude-Annette Rive – as well as other distinguished scientists, such as Philippe Meyer, Jacques Mandelbrojt, Georges Bonnevey, Khrosrow Chadan and Jean Tran Thanh Van. Lévy also provided hospitality for Louis Michel and his group, Claude Bouchiat, Henri Epstein and Gérard Flamand, from the École Polytechnique. We had many prestigious visitors, the most illustrious being Murray Gell-Mann, Robert Oppenheimer and Chen-Ning Yang.

Lévy's plan was to conquer the university, a thing that nobody before him had dared to try. The problem was that there was already a chair of "physical theories" in the hands of Louis de Broglie and his friends. By playing with words, a chair of "theoretical physics" was created with the help of Gaston Berger, director of "enseignement supérieur". Lévy started immediately to teach quantum mechanics, field theory and particle physics. He asked us, his students, to help him and I remember that I gave some lectures at the École normale and the Institut Henri Poincaré. The result was that Lévy could recruit excellent people outside the "grandes écoles". The best example is John Iliopoulos, who came from Greece, sent by

Themis Kannelopoulos, and became a star of theoretical physics as one of the three physicists who predicted the existence of the charmed quark (in the Glashow-Iliopoulos-Maiani mechanism).

During the period where I was at the École normale (before leaving for CERN in 1959) two important events took place. I had a friend, Louis Pons, who knew a certain Mr Partiot who wanted to sell a piece of land in Cargèse, Corsica, for an educational purpose. In 1958, a meeting was organized between the four of us and Lévy's secretary, Colette Movchet. During the meeting, Mr Partiot offered to let us try the Cargèse site for a summer school, without any commitment on our part. We accepted. The courses were held in a barn, the participants were accommodated at Hotel Thalassa or in the camp Rocca Marina, or simply camped. It was a complete success. After that, Lévy tried various other possibilities in Corsica, with the help of Rocard. In the end, the Cargèse site was chosen and with his cleverness and management skills Lévy found the necessary financial support. The first official summer school took place in 1960 in what is called now the "Institut d'Études Scientifiques de Cargèse".

The second important event was the creation of a group of experimental nuclear and particle physics at the initiative of Rocard and Lévy. They convinced Hans von Halban to come back with his group from Oxford to the École normale. The group moved to Orsay, where the linear accelerator was built. The Linear Accelerator Laboratory (LAL) became one of the most important experimental laboratories in the world of particle physics (CERN Courier July/August 2006 p33). The linear injector for CERN's Large Electron-Positron collider was built there, for example, and the laboratory was one of the main contributors to the discovery of neutral currents. Lévy also helped choose André Blanc-Lapierre and André Lagarrigue as successive directors of LAL.

Maurice Lévy's lasting impact on French science is a result of his vision of how scientific organizations should be and his relentless efforts to build them for our community.

● André Martin, CERN.

Inside Story

CS Wu: First Lady of physics research

Chien-Shiung Wu is the subject of a new biography that marks her centenary. The author talks about how the book came about.

It has been many years since the first idea of writing this biography occurred to me. During this period, I have talked to many people about Chien-Shiung Wu: some knew her a little, most had only vague understandings; some asked me why I should write a biography of Wu, and some even asked who Wu was!

In 1956, Wu was the first to perform a rather difficult and precise experiment, and confirmed the hypothesis [of parity violation] proposed by CN Yang and TD Lee. Yang and Lee became the first two Chinese Nobel laureates. Although Wu did not share the prize – to the surprise of many – she was acknowledged as one of the most distinguished experimental physicists in the world.

Wu went to the US in 1936. By the time she earned a PhD in 1940, her achievements and insights in research had already received the highest admiration from many professors at the University of California, Berkeley, such as the great American scientists Robert Oppenheimer and Ernest Lawrence. As a result, she was invited as a non-citizen of the US to participate in the top-secret “Manhattan Project”, working on atomic bombs, and made critical contributions to the project.

Because of her significant achievements and her profound influences in physics, Wu was often called “the Chinese Madame Curie”, “the First Lady of Physics Research” and the “Queen of Nuclear Research”. In 1975, she broke the white-male-president tradition and became the first female president of American Physics Society.

Wu visited Taiwan on the invitation of Academia Sinica in 1983, after an absence of 18 years. I met her for the first time as a science reporter for the *Reading Times*, which served as the beginning of the adventure of writing her biography. She had retired from Columbia University in 1980 after 36 years. As professor emeritus,



Chien-Shiung Wu, right, with Wolfgang Pauli in the early 1940s. (Image credit: Pauli Archive/CERN.)

her major research activities slowed down gradually. She was in her 70s – a good time for reflection.

I received much encouragement when planning this biography, particularly from CN Yang, who mentioned that a distinguished scientist such as Wu deserves to have a good biography. I discussed this proposal with Wu two years later. Always matter-of-fact, modest and never seeking fame, she declined. Only after many verbal and written persuasions, and the argument put forward by Luke Yuan [her husband] that her biography would help in inspiring Chinese youth in addition to publicizing her achievements, was she finally convinced.

With the inspiration of Yang, I realized the importance of using an objective narrative in writing this book. As a result, I did not rely only on her own account but would interview her colleagues, students, friends, relatives and even competitors, and make reference to many documents and literature. This turned out to be a time-consuming undertaking.

I started the official interviews with Wu in New York in September of 1989. They were unexpectedly rough. I had imagined a rather romantic setting, with Wu vividly recounting her life and events. With the tape recorder turning and my pen moving, the Sun would be setting slowly. But this almost never happened in the tens of interviews in more than a year!

Wu never wrote a diary. While wholeheartedly immersed in her scientific experiments in the past years, she never considered recording this process for the

Chien-Shiung Wu was born on 31 May 1912 in Liuhe, near Shanghai. In 1957, Wu and her colleagues published their historic paper, “Experimental test of parity conservation in beta decay”, which established for the first time the non-conservation of parity. The study of nuclear beta decay was a central focus of Wu’s research. In 1949 and 1950, through a series of beautiful experiments, Wu measured the allowed and forbidden beta spectra, corrected many previous mistakes and firmly established Fermi’s theory. Almost single-handedly she cleared up the confusion in beta decay that had existed for one and a half decades. (*CERN Courier* April 1997 p21.)

world, and therefore had no memory of many events. In addition, she was down-to-earth and of few words. The medicine that was lowering her blood pressure also affected her memory. The many hours of interviews and reminiscences were not enough to reconstruct her past.

I flew more than 30,000 miles, all over the world, to interview more than 50 individuals in China, Hong Kong, Europe, the US and Canada. The tape recording of tens of hours was followed by telephone calls to confirm details.

I used objective narrative as much as possible, avoiding subjective opinion or novel-style descriptions. Basically, this book conforms to the current trend in biographic writing: using a style closer to news reporting. In a way, its writing could be regarded as an attempt to test the idea that “news serves as a footnote of history”.

● Tsai-Chien Chiang, author of *Madame Chien-Shiung Wu: The First Lady of Physics Research* (translated by Tang-Fong Wong, World Scientific 2012). This article is extracted with permission from the September 2012 issue of *Asia Pacific Physics Newsletter*, which also includes an article on Chien-Shiung Wu’s scientific achievements. See www.worldscientific.com/toc/apnp/01/02.

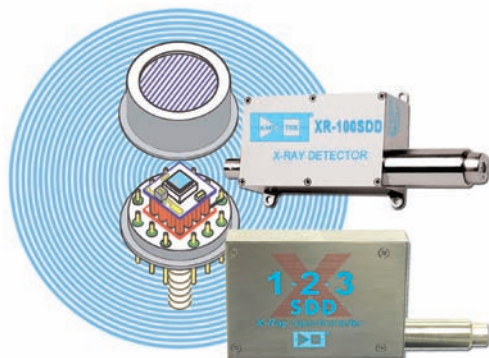


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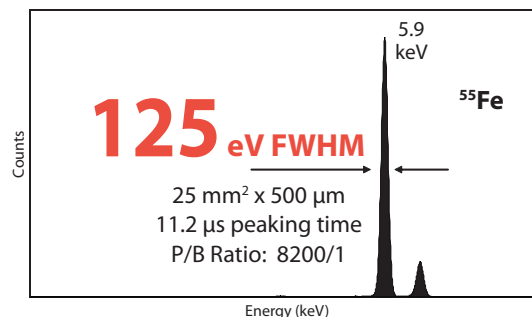
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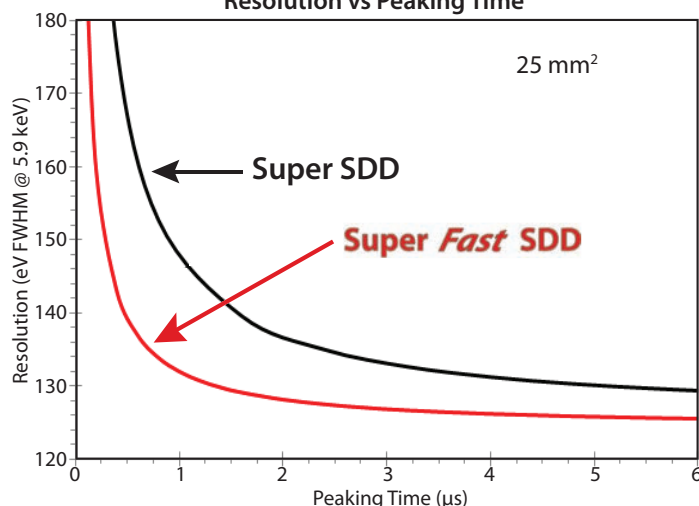
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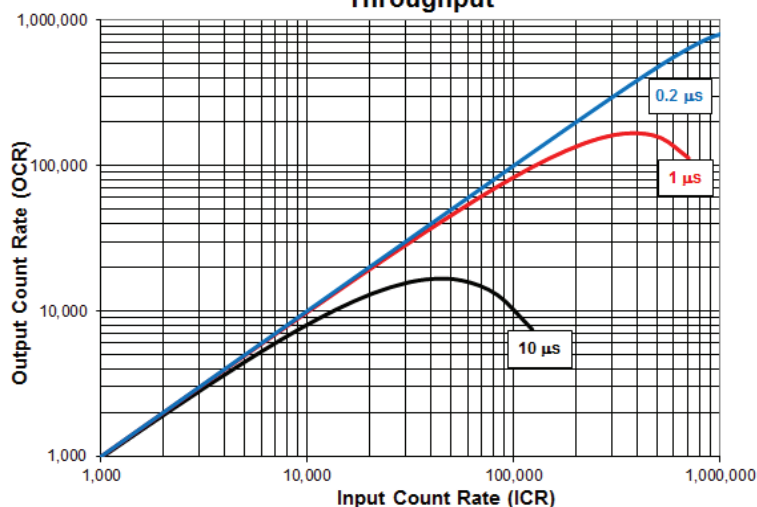
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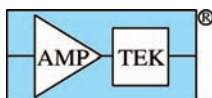


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