

ON THE PROFESSIONAL LIFE OF JAN BLOMQVIST

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When I was asked to speak about Jan Blomqvist professional life I thought that he would be here with us, but unfortunately he got a heart stroke and does not feel well enough to attend this workshop. But he told me that he would like to apologize for that and to thank all of you for participating in this workshop.

I heard the name Jan Blomqvist in the 1960's, and already at that time he was known as an outstanding physicist, but I became well aware of his work when I arrived in 1976 to what was then called "Atomfysik Institut" or simply AFI. Here I got an office besides Jan's office and often spoke with him about physics, thus becoming aware of his deep knowledge of the whole of physics, not only nuclear physics.

When I arrived to AFI Jan had a long and fruitful activity in research. His interest in physics started in the 1950's, when he was making his special work at the Nobel Institute for physics under the direction of Manne Siegbahn. Jan wanted to work in theoretical physics, but Siegbahn told him that the Institute was concerned with experimental research and it was assumed that the experimentalists should know their theory, and for that reason no theoretician was needed. Therefore, Jan started as a experimental physicist, which explains why he has a deep knowledge of the needs and possibilities which are available for the many experimental colleagues working with him.

Soon after that, Ingmar Bergström, who was a young and very active experimental nuclear physicist at the Nobel Institute, pointed out to Siegbahn that he would need someone to interpret the results he obtained in his measurements of the spectra in the lead region within the framework of the recently formulated shell model. And it was in this fashion that Jan started as a theoretician. His first work, performed together with Sven Wahlborn, was the calculation of the single-particle wavefunctions in ^{209}Pb by using a Woods-Saxon potential. The calculation was performed in a Swedish computer called BESK (Binär Elektronisk Sekvens Kalkulator), which when it appeared was the fastest in the World, but soon became obsolete with its vacuum tubes devices. There was not any effective software for this computer and Jan had to use the internal machine language, which in itself was a

performance. The results thus obtained were published in a magazine called Arkiv Fysik the 1st of January of 1960. This paper was very much quoted, with its results shown even in the first volume of the Bohr-Mottelson book. The great achievement at that time was that a potential with diffuseness was used, as the title of that paper, i. e. "Shell Model Calculation in the lead region with a diffuse potential" indicates.

After that Wahlborn left physics and moved to the Swedish Defense Research Agency (FOI) while Jan got a fellowship to work in Birmingham with Gerry Brown in 1960, thus starting a collaboration and friendship that lasted until Gerry passed away. This friendship contributed to the large research activities of Gerry in Norway and Finland. In 1961-1962 Jan worked in Copenhagen, at Nordita, where he became a partner and friend of Ben Mottelson and Aage Bohr, both of whom invited Jan to the Physics Nobel prize ceremony in 1975. In 1964 Jan went to Stony-Brook where he deepened his friendship with Gerry Brown and got in professional contact with many others, particularly Akito Arima. Much later, when Arima was the Rector of Tokyo University, he attended a meeting organized by the Stockholm University to discuss collaboration prospects between the two Universities, and in the ceremony the authorities of Stockholm University arranged to honor Arima, Jan was invited as Arima's guest.

In Stony Brooks, together with Tom Kuo, Jan extended the Kuo-Brown interaction, which was first developed for oxygen isotopes. to the lead region, later published by Kuo and Herling in a report at the Naval Research Laboratory, Washington, D.C., 1971. I myself used this interaction much later to evaluate the alpha decay from ^{212}Po . I noticed that the alpha formation amplitude increased very much as the number of configurations were increased. I mentioned this to Jan while we were having lunch at the Stockholm University restaurant. Passing by, like telling me about the weather, he said "that indicates that the high configurations describe clustering". I was astonished, and immediately after the lunch evaluated the two-particle wave function as a function of the number of configurations. And exactly as Jan said, I found that high configuration induced clustering, which became a well known and much discussed feature later.

In 1974 Jan worked at CERN, performing theoretical work with Torleif Ericson and supporting the experimental activities just started at that time at the ISOLDE facility.

He visited many laboratories and collaborated with many researches. Particularly with Peter Kleinheinz at Julich,

where outstanding research on the Gadolinium isotopes was performed.

As Berta has told us, he was extremely appreciated in Julich and even in Valencia.

Jan's had a particular fondness for physics in the Nordic Countries, which he encouraged through his position as Nordita Program Committee member. Particularly in Oslo with Osnes and Morten Hjorth Jensen who, as he told us, had Blomqvist as opponent in his PhD thesis. As Sven Åberg also told us Jan was Sven's opponent in his thesis in 1980.

Jan Blomqvist is well known for his outstanding performance in evaluating nuclear properties by using the shell model. As his friend Hubert Grawe told me once "Jan is, more than a physicist, a magician when explaining nuclear spectra". This was more emphatically expressed by an international committee evaluating the research groups in Sweden for the National Research Council. It said that the research work of Blomqvist is already classical.

We are happy and proud to organize this workshop in his honor.