H. M. Nussenzveig
UNIVERSITÉ DE PARIS-SUD
CENTRE D'ORSAY

LABORATOIRE D'ÉTUDE
DES PHÉNOMÈNES ALÉATOIRES
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91405 ORSAY
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PROF. MÁRIO SCHÖNBERG

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SÃO PAULO (S.P.)

BRÉSIL

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Com meus agradecimentos
pela sua contribuição
e um abraço.
Moysés

GUIDO BECK

on his 70th Birthday

H.M. Nussenzveig*
Institute for Fundamental Studies,
Department of Physics and Astronomy,
University of Rochester, Rochester, New York

"In the temple of science are many mansions, and various indeed are they that dwell therein and the motives that have led them thither. Many take to science out of a joyful sense of superior intellectual power ; science is their own special sport to which they look for vivid experience and the satisfaction of ambition ; many others are to be found in the temple who have offered the products of their brains on this altar for purely utilitarian purposes. Were an angel of the Lord to come and drive all the people belonging to these two categories out of the temple, the assemblage would be seriously depleted, but there would still be some men, of both present and past times, left inside".

A. Einstein.

In the present time, when the relevance of science and the motives of scientists are questioned almost daily, it is comforting to know that there are still some who belong in Einstein's third category. When so much is said and so little is done about help to developing countries, it is good to know someone who has not only contributed to physics, but also towards the creation of physics groups in several such countries.

Guido Beck was born on August 29, 1903, in Liberec (Reichenberg), which was then part of the Austrian Empire. He has kept the Austrian nationality. He made his studies at the University of Vienna, where he took his Ph.D. in 1925.

* *I would like to thank several of Guido Beck's friends and "children", in particular, E. Gaviola, P. Havas, E. de Mathov and G.W. Skrotzky, for their help.*

In the following year, he became an assistant in Berne, and after that in Vienna. His early work was concerned with general relativity and with the Compton and photoelectric effects. He then turned his attention to nuclear physics, and, in a series of papers that started coming out in 1928 (before the discovery of the neutron), he attempted to classify and interpret the "systematics of isotopes ". Here one finds formulated for the first time the idea of a nuclear shell model.

Still in 1928, Beck moved to Leipzig, where he worked as Heisenberg's assistant. He visited the two Meccas of that golden age of physics : the Cavendish Laboratory, where he went as a Rockefeller fellow in 1930-31, and Bohr's Institute in Copenhagen, where he stayed in 1932 as an Orstedt fellow. It was said at that time that one could not visit Denmark without getting married, and he was no exception. His work during this period deals mainly with quantum scattering problems.

From 1932 to 1934, Beck taught at the German University of Prague, where he became a "Privatdozent" in 1934. Together with his student K. Sitte, he proposed a theory of beta decay in which, in agreement with the views then held by Bohr, energy-momentum conservation was violated in the nuclear interaction. This model was superseded by Pauli's neutrino hypothesis and Fermi's theory.

Beck spent the academic year 1934-1935 in the U.S.A., as a visiting professor at the University of Kansas. In a paper written in collaboration with his student L. Horsley, he provided the explanation for the large capture cross sections of slow neutrons (1/v law) that had just been observed by Fermi ; the same result was derived independently by Fermi, Perrin and Elsasser, and Bethe. Beck and Horsley also tried to interpret nuclear resonance scattering on the basis of a potential well model.

From the U.S.A. Beck went to the Soviet Union, where he stayed from 1935 to 1937, as a visiting professor at the University of Odessa. He started teaching a course in theoretical physics in German, but he soon switched to Russian. Two of his former students perished in combat during the war ; four others are now professors at Moscow and Odessa.

Early in 1938, Beck moved to France. He became a research professor at Thibaud's Institute of Atomic Physics in Lyon. In 1940, he was placed in a prison camp. His position at the Institute was maintained, but he could not occupy it in view of his stay in the camp. He finally managed to get away in 1942 and go to Portugal, where he was a visiting professor at the

Universities of Coimbra and Porto. He continued to form students both in France and in Portugal; his work, which dealt mainly with nuclear physics and quantum electrodynamics, was carried out, as he himself put it, "under, indeed, very difficult conditions".

In 1943, Beck accepted an invitation from E. Gaviola to go to Argentina. He spent the following eight years at the Córdoba Observatory. As one of the founders of the Argentine Physical Society, as an organizer of meetings and summer schools, and above all through the formation of numerous disciples, he played a very important role in the development of physics in Argentina. The main lines of investigation with which he was concerned were in quantum electrodynamics and in optics, including, in particular, contributions to the theory of the Cherenkov effect and to diffraction theory.

From 1951 to 1963, Beck was in Brazil. Apart from a two-year stay as a visiting professor at the University of São Paulo, he spent this period in Rio de Janeiro, where he became a professor at the Brazilian Center for Physics Research. A hard blow he suffered during his stay in Brazil was the loss of his wife.

Together with J. Leite Lopes and J. Tiomno, Beck contributed to the formation of a large and active theoretical physics group at the Center. His research interests included diffraction theory, the treatment of the emission process, and S-matrix theory.

In Argentina, in the meantime, Beck's former student J.A. Balseiro had organized a new institute in Bariloche, that kept forming a small but steady stream of physicists. After Balseiro's untimely death in 1962, Beck accepted a professorship at what is now called the Balseiro Institute. Apart from frequent trips to Europe and to the United States, he has stayed there until now. His research activity spans a broad spectrum, including coherence theory, dispersion, and the theory of the laser.

It is not easy to do justice to all of Beck's achievements in Argentina and in Brazil, nor to explain the difficulties with which he has had to struggle. His influence has been exerted not only through the formation of physicists, but also by upholding, through his personal conduct and advice, the highest standards of academic tradition.

Besides a large number of research papers, Beck has written several books, including the articles on general relativity in Geiger-Scheel's Handbuch der Physik, on nuclear physics in Marx's Handbuch der Radiologie and on quantum mechanics in Frank-von Mises.

He is an honorary fellow of the Argentine Physical Society and the Austrian Physical Society, a corresponding member of the Brazilian Academy of Sciences, and an honorary professor of the Universidad Mayor de San Andrés in Bolivia. In [illegible] he was awarded the [illegible] medal by [illegible], in recognition of [illegible].

Among Beck's favorite activities other than physics are walking and smoking. A physics discussion with him is apt to be carried out through a two-hour long walk and to be continued at his home into the small hours of the morning. His rate of smoking is best illustrated by the following story : During a long train journey through the Soviet Union, he shared a compartment with Dirac, who sat characteristically silent throughout the day. However, Dirac looked more and more worried. As the time approached to retire for the night, he finally asked : "Say, Beck : do you smoke when you sleep ?"

Beck's youthful spirit and energy, his kindness, warmth and humanity are blended with a lively sense of humor, a sample of which may be found in his joint paper with H. Bethe and W. Riezler "Bemerkung zur Quantentheorie der Nullpunktstemperatur" (Naturwiss. 19, 39 (1931)).

Beck's relationship with his students is a very special one. He always refers to them affectionately as his "children". His friendship and concern for them, as well as the help he keeps providing, render this name quite appropriate.

Space limitations have allowed only a small fraction of Beck's many friends and children to contribute to the present commemorative issue. However, they all join together in wishing him a Happy Birthday and the continued enjoyment of his fruitful activity.