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Köln, 27.10.2014

Letter of reference for Prof. Dr. Pavel Petkov

My collaboration with Dr. Pavel Petkov started in 1986 when he visited the Institute for Nuclear Physics at the University of Cologne together with Prof. Dr. W. Andrejtscheff. Since this time he became a collaborator who participated very closely in our nuclear structure work and especially in the field of lifetime measurements of excited nuclear states.
He contributed essentially to the developments of various applications of the Differential Decay Curve Method (DDCM). He worked out variants of the DDCM for specific cases when gating on a depopulating transition of the level of interest is used or when only fractions of populating or depopulating transitions are used as gating conditions. In addition he determined the effects on the measured line-shapes of transitions when the slowing down time of the recoiling nuclei in the stopper foil cannot be neglected. Thus he contributed considerably to establish the DDCM as a universal tool for the lifetime determination of excited nuclear states.
Aside from his careful way to perform the data analysis it is due to his deep understanding of the experimental nuclear physics techniques that he reveals effects not considered in standard data analysis, e.g. the impact of the deorientation effect on the lifetime measurements in the A=130 mass region. His outstanding skills resulted not only in valuable computer codes but increased also considerably the reliability of the data analysis.
In addition to his contributions to the experimental work he became over the years an expert in describing nuclear structure features in the framework of various collective nuclear models like the Interacting Boson Model, the Triaxial Rotor Model and the General Collective Model. He applied these models very successfully in many cases and his knowledge in nuclear physics and in the theoretical basis of these collective models allowed him to investigate both common aspects and special features.

During his frequent stays at the Institute of Nuclear Physics at the University of Cologne he worked a lot with students training them in the data analysis of measurements especially in the analysis of Doppler shift attenuation experiments. All students he worked with appreciated very much his profound competence, patience and his friendly character.

His expertise in the data analysis of gamma-ray spectroscopic measurements as well as in theoretical nuclear structure is searched both by students as well as by established professors. He is a scientifically highly acknowledged person. More than 70 publications (IKP+INRNE) resulted from our fruitful collaboration.

Summarizing I can state that Dr. Pavel Petkov is an outstanding experimental physicist revealed by the high impact of his work on the field of nuclear structure physics. Recently he became head of the Laboratory "Nuclear Reactions" of the Institute for Nuclear Research and Nuclear Energy of the BAS). In the frame this new duty he started to engage also in physics of accelerators.

He is always open for new ideas and he is interested to acquire new skills. I am convinced he will continue to do excellent scientific work of highest quality in the future.

In conclusion I wholeheartedly support his application for becoming a Corresponding member of the Bulgarian Academy of Sciences (BAS)

Sincerely Yours

A. Dewald

Prof. Dr. A. Dewald