It is with great sorrow that the Hungarian Mössbauer Community represented by the Network of Hungarian Mössbauer Laboratories announces the demise of its founder

Professor Lajos Keszthelyi

ordinary member of the Hungarian Academy of Sciences, Research Professor Emeritus of both the Biological Research Centre Szeged and the Wigner Research Centre for Physics, Budapest who passed away on 9 December 2022 at the age of 96.

The memorial service was held on 4 January 2023 in Lajos Keszthelyi's native place Kaposvár.

Lajos graduated as a schoolteacher for mathematics and physics from the Pázmány Péter University (predecessor of the Eötvös Loránd University) in Budapest in 1950. After four more years spent at the university, he moved to the Central Research Institute for Physics of the Hungarian Academy of Sciences (KFKI) in 1954 where and later at the successors of which he held various leading positions until 1989. He partially returned to the KFKI-successor Wigner Research Centre for Physics in 2012 as a Research Professor Emeritus. In 1972, he was invited to the Biological Research Centre Szeged, that time in the course of formation. At this centre, between 1975 and 1993 he was Director of the Institute of Biophysics and, at the same time, from 1989 to 1993 also Director General of the research centre. After his retirement in 1997, Lajos continued working at the centre as a Research Professor Emeritus until his passing.

Lajos's most significant contribution from the Hungarian Mössbauer community's point of view was reproducing the ^{57}Fe Pound–Rebka experiment as early as November 1960 at KFKI and establishing the first Mössbauer group in the country. Together with his co-workers, Lajos first demonstrated the Mössbauer effect on ^{159}Tb in 1962. Other Mössbauer isotopes used in his group in the sixties included ^{197}Au, ^{119}Sn, and ^{161}Dy. Major topics investigated in his group using Mössbauer spectroscopy initiated mainly by him comprised the glass transition in frozen aqueous solutions and the determination of hyperfine fields from the perturbed angular distribution of Mössbauer-scattered radiation. A new Mössbauer group devoted to biophysics was organized by Lajos in Szeged after 1973 when he moved to the Biological Research Centre. In an experiment proposed by him during this period (performed at KFKI, though) an upper limit was established for the difference of the absorption of right and left circularly polarised γ-quanta in L and D amino acids using elliptically polarised Mössbauer radiation.

From the mid-sixties to the mid-seventies Lajos had lively contact with Mössbauer spectroscopists in Egypt. In fact, he was there at the time of birth of the first Mössbauer group in the country. The extensive study of ancient Egyptian pottery was primarily significant from a science policy point of view: Lajos recognized with an excellent sense what it is that the researchers of a country, that time with a not-too-strong infrastructure, can draw the attention of the international scientific community to themselves.

Lajos's role in organizing Mössbauer conferences is also worth mentioning. It was unquestionably him whose connections and reputation made the Mössbauer conference 1969 in Tihany truly international but he was also there at the opening of ICAME 1989 in Budapest.

Admittedly, Mössbauer spectroscopy was only a minor part of Lajos's oeuvre. In the first twenty years of his career, he achieved internationally recognized results in solid-state physics. He initiated studying the hyperfine interaction on the nuclei of atoms embedded in ferromagnetic alloys both using time-integral perturbed γ-γ angular correlation (PAC) and perturbed angular distribution (PAD) of γ-quanta at the KFKI Van de Graaff accelerator. Furthermore, he played a decisive role in introducing and developing in Hungary various methods of ion-beam analysis including Rutherford backscattering spectrometry (RBS), nuclear reaction analysis (NRA), and particle-induced X-ray emission (PIXE) as well as applying them in life sciences.

Besides many other topics, Lajos focused in biophysics on two main subjects. First, he followed the exciting question of whether the parity violation observed in β-decay can be connected to the difference in the frequency of occurrence of the L and D enantiomers of biomolecules and continued proposing further experiments to answer. Second, he systematically investigated the proton pumping mechanism in bacteriorhodopsin, an ion-transporting membrane protein converting light energy into chemical energy in nature.

Beyond his scientific research, Lajos was very active in university education and supervised countless students many of whom got later to the top themselves.

We shall miss him. Our thoughts are with his family.

Dániel Merkel	Dénes Lajos Nagy	Zoltán Németh	Imre Vincze
Wigner RCP	Wigner RCP	Wigner RCP	Wigner RCP