# PÉTER FÖLDES
**1930—1982**

At the early age of fifty three Péter Földes, Corresponding Member of the Hungarian Academy of Sciences, Professor, Head of the Department of Chemical Unit Operations of the Technical University Budapest, collaborator of the Secretariate of the National Committee of Science Policy suddenly died. This is a grievous loss for Hungarian chemical engineering science, chemical engineering training and scientific life.

Péter Földes graduated in 1952 as chemical engineer from the Technical University of Budapest. From 1952 to 1955 he worked on his thesis at the Department of Chemical Unit Operations and Apparatus of the Leningrad Institute of Technology under the leadership of Academician Romankov, and defended in 1955 his thesis for the scientific degree of a C.Sc.

From 1956 on he worked at the Department of Chemical Unit Operation of the Technical University Budapest.

In 1968, at an age of thirty eight, he obtained the scientific degree of a D.Sc.

In 1969 he was appointed Professor, and from 1977 on Head of Department.

His C.Sc. thesis, investigating the efficiency of mass transfer in plate distillation columns and giving a new relationship, readily utilizable in practice, on the efficiency of gridplate columns, was decisive for all his scientific activity, which is characterized by the unity of theory and practice. He committed himself to distillation, which always remained his favourite theme of research, though there is scarcely a chapter of chemical unit operations, in which he was not creative.

Thus, in 1957–58 he was engaged as co-worker of the chemical department of the nuclear research reactor of the Central Physical Research Institute and of the Design Bureau of the Uranium Ore Mines of Pécs in uranium ore extraction and fluidized bed ion-exchange. In 1960 he was chief technologist of the Berente Chemical Works, and this work directed his

attention to the unit operation absorption. As a fellow of the International Atomic Energy Agency, in 1964 he carried out evaporation experiments on radioactive waste waters at the Technical University of Munich.

Between 1963 and 1971 he was co-worker at the Automation Research Institute of the Hungarian Academy of Sciences, where his attention was captured by the application of computers, mathematical modelling, optimization, system engineering and process control. He started investigations at the Department of Chemical Unit Operations on the time- and transient behaviour of chemical unit operations.

In addition to work in other fields, Péter Földes and his co-workers continued at the Department of Chemical Unit Operations research on distillation columns and distillation. One of the results of this work was the "Földes equation" for the calculation of the optimal vapour velocity in grid-plate columns, which served also as starting point of further research, and was extended to other types of plates. Together with his co-workers, he derived an experimentally checked theoretical model for the description of the transient behaviour of distillation towers of various design, which is important in automatic control. On the basis of economic considerations relationships were worked out for the optimal operational parameters of distillation and absorption towers, which take into account the physical-chemical characteristics of the system and the construction of the apparatus.

His latest field of interest was the energetic optimization of distillation equipment, with a claim to theoretical thermodynamical foundation, applying system engineering.

These results were also internationally recognized, and are mentioned, appreciated and recommended in technical and text books, used all over the world.

From the practical aspect, the most important result of his distillation research is the ring-valve grid plate, patented with his co-workers in several countries, which permits at an identical or improved efficiency the reduction of the column cross-section to half of that needed for conventional plate types. The plate of novel design has been applied both in Hungary and in foreign countries in the chemical, petroleum and spirit industries.

His extensive research work had a fruitful effect also on his teaching activity. Péter Földes initiated the introduction of several disciplines, as e.g. control engineering, mathematical modelling, optimization and system engineering, in the education of chemical engineers. In his book "Rectification" he discusses with his co-author this operation from an aspect new in Hungarian technical literature.

Péter Földes was deeply engaged in social problems and those of public life, activity in public life formed an important part of his life. His activity concerned mainly tuition politics and science organization. He was member of

the Special Committee of the Scientific Qualification Commission and of the Scientific Qualification Commission. He participated in the work of the Chemical Engeneering Commission, the Automation and Computer Techniques Commission and of the Working Commission of Chemical Unit Operations of the Hungarian Academy of Sciences. Between 1970 and 1972 he was Head of the Scientific Department of the Technical University Budapest, and between 1974 and 1977 Head of Section I of Natural Sciences of the Hungarian Academy of Sciences. From 1979 on he was co-worker of the Secretariate of the Committee of Science Politics.

In 1964 he was awarded the silver medal of the Order of Labour. In 1978 he was conferred the honorary doctor's degree of the Leningrad Institute of Technology.

In 1982 he was elected corresponding member of the Hungarian Academy of Sciences. But his inaugural address was prevented by his early death.

Dr. Hajnalka Hajdú

## Scientific Work of Péter Földes

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## *Patents*

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   Patented; "union priority" 15.3. 1966.
   a) Hung. Pat. No. 154.070
   b) Brit. Pat. No. 1.171.958
   c) French Pat. No. 1.519.101
   d) BD Pat. No. 1.619.689
2. P. FÖLDES and co-inventors: Kombinált ellenáramú tányéros mosókolonna gázabszorpcióra és/vagy porleválasztásra (Combined counter-current plate column scrubber for gas absorption and/or dust separation)
   Filed: 5.10.1979 (Ser. No. 12092)
   Employee's patent, BME, VVE and Szellőző Művek.

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