

Obituary

Ing. František Peterka, DrSc

(1939-2003)

Invited lecturer – YUSNM Niš 2000 and ISNM NSA Niš 2003



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It is very sad to note that one of the invited lecturer to the ISNM NSA Niš 2003, Professor František Peterka, died just two days after attending the International Symposium Nonlinear Mechanics – Nonlinear Sciences and Applications in Niš, due to an unexpected and incredible event.

»With his important and updated research activity in the field of nonlinear impacting dynamics, Professor Peterka was an assiduous protagonist of a great number of scientific events that occurred in the last decade in the general area of mechanical applications of nonlinear and chaotic dynamics.

For his scientific work, as well as for being a man of great humanity, mildness, tolerance and generosity, Professor Peterka was credited with great esteem, appreciation and friendship within the overall group of scholars in nonlinear dynamics who interacted with him during the years.« (From Obituary by Giuseppe Rega in the IUTAM Symp. Book-Chaotic Dynamics and Control of Systems and Processes in Mechanics, Eds: G. Rega, and F. Vestroni, Solid Mechanics and Its Applications, Springer, pp. XXV-XXVI).

František PETERKA was born in Týn nad Vltavou (South Bohemia) on November 26, 1939. In 1957 he entered the Faculty of Engineering of the Czech Technical University, Prague. In 1962 he began his scientific activity at the Institute of Thermomechanics of the Czechoslovak Academy of Sciences. His research has centred on the Dynamics of Mechanical Systems, particularly on the problems of dynamics of strongly non-linear systems with impacts. In 1968 he defended PhD Thesis "Theory of dynamical impact damper with two degrees of freedom."

He was the author of more than 150 papers and lectures and five books. He has solved both theoretically and through the use of analogue computer simulation the problems of periodic and

chaotic impact motions and the optimisation of parameters of the impact systems with viscous and dry friction in models of mechanical hammers, compacting and crushing equipment as well as impact dampers. At present he works as the senior scientist dealing with the problems of chaotic dynamics in mechanical vibro-impact systems and on problems of flow-induced-impact vibration. He is also interested in the numerical simulation of non-linear systems.

He defended in 1990 his Doctoral Thesis "Dynamics of mechanical systems with impacts". He was the Deputy Head of the Department of Systems Dynamics and the Head of the Dynamics of Non-Linear Systems Laboratory of the Institute of Thermomechanics, Academy of Sciences of the Czech Republic. His scientific work was supported from 1991 in five grant projects by Grant Agency of the AS CR, Grant Agency of the CR and by Ministry of the Education, Youth and Sport of the CR.

"Hi was one of the first researchers who discovered chaotic phenomena in nonlinear mechanical systems. He worked also on the experimental verification of theoretical results by means of physical models of mechanical systems. His least larger contribution to the theory of vibration is the chapter Vibration Impact Systems in the Encyclopaedia of Vibrations, published by Academic Press, London in 2001. With industrial enterprises he collaborated on the development of the mechanical hammers for metal scrap compacting equipment, pneumatic drill hammers, and on the modelling of the oscillation of the nuclear reactor fuel rods under aeroelastic and seismic excitations. He elaborated a new principle of forming impact machines remains unfinished. He spare time he devoted mainly to his family, a daughter, two sons and four grandchildren, and to music; he played violin and sang in the church orchestra and choir." (From Obituary by Ladislav Pust in the IUTAM Symp. Book-Chaotic Dynamics and Control of Systems and Processes in Mechanics, Eds: G. Rega, and F. Vestroni, Solid Mechanics and Its Applications, Springer, pp. XXV-XXVI).

Membership in the:

- 1) Czech Society for Mechanics,
- 2) International Federation for the Theory of Machines and Mechanisms. He is the Chairman of the Czech National Committee and the Secretary of the IFToMM Technical Committee "Non-linear Oscillations".
- 3) Euromech Society for Mechanics (EUROMECH) and the Secretary of the IFToMM Technical Committee Nonlinear Oscillations. He was the member of the permanent Euromech Non-Linear Oscilations Conferences Committee.
- 4) Management Committee of the COST P-4 Action "Non-linear Dynamics in Mechanical Processing".

Last Professor Petarka's contribution was chapter in the IUTAM Book:

František Peterka, (2005), *Dynamics of Mechanical Systems with Soft Impacts*, in the IUTAM Symp. Book-Chaotic Dynamics and Control of Systems and Processes in Mechanics, Eds: G. Rega, and F. Vestroni, Edition Solid Mechanics and Its Applications, Editor-in-Chief G.M.L.Gladwell, Springer pp. 313-322.

I believe I fully interpret the feelings of all of his scientific friends and colleagues from different countries over the world by including participants of the Sixth International Symposium *Nonlinear Mechanics – Nonlinear Sciences and Applications Niš 2003*, which is one of the very last Symposium Professor Peterka contributed to, with Invited Lecture named: *More Detail View on the Dynamics of the Impact Damper* and published in our University Journal *Facta Universitatis Series Mechanics, Automatic Control and Robotics*, Vol. 4, No.14, 2003. pp. 907-920.

Katica (Stevanović) Hedrih