



Antoni Sawczuk

Professor Antoni Sawczuk (1927 – 1984)

In Memory of Professor Antoni Sawczuk, by **Zenon Mróz**, *J. Struct. Mech.*, Vol. 14(1), 1-3 (1986)

This issue of the *Journal of Structural Mechanics* is devoted to the memory of Professor Antoni Sawczuk, former Co-Editor of this journal, who died on May 27, 1984, in Grenoble, France. The scientific community of structural and solid mechanics has lost an outstanding scholar, and his numerous co-workers and colleagues from various countries mourn his departure. As one of his past collaborators and personal friends, I would like to present these notes concerned with his life and scientific activity.

Professor Antoni Sawczuk, born on January 16, 1927, in Komarno, Poland, obtained his university degree in 1951 in Civil Engineering from the Technical University of Warsaw. After graduation he worked for several years as a design engineer and researcher at the Warsaw Technical University where he was associated with the late Professor W. Olszak. He received his doctor's degree in 1958 and performed postdoctoral studies in mechanics at the Illinois Institute of Technology, Chicago, and at Brown University, Providence.

From 1961 on he was associated with the Institute of Fundamental Technological Research of the Polish Academy of Sciences. He became an Associate Professor in 1965 and a Professor in 1977. He served as

Chairman of the Department of Mechanics of Solids and Structures during the period 1970 – 1982. Professor Sawczuk also held visiting lectureships or professorships at the Illinois Institute of Technology (1964 – 1965), University of Grenoble (1966 – 1968 and 1976 – 1977), Nagoya University (1975), University of Poitiers (1978), and University Aix-Marseille (1982 – 1983). He also delivered lectures and seminars at numerous universities and research centers. In 1969 he was elected Corresponding Member of the Polish Academy of Sciences and became its Titular Member in 1983. He received Honoris Causa Doctorate from the Institut National Polytechnique, Grenoble in 1978. Professor Sawczuk received several awards from the Polish Academy of Sciences and its National Prize in Sciences in 1968 for his contributions to the theory of plasticity. In 1982 Professor Sawczuk was elected Rector of the International Center of Mechanical Sciences (CISM), Udine, Italy.

Professor Sawczuk's research interest concentrated on the theory of plasticity and its applications to structural mechanics. His attention was first concentrated on limit analysis of plates and shells and next on cyclic loading and shakedown problems for elastic-plastic structures, post-yield behavior to account for configuration changes, dynamics of plastic structures, and codes of plastic design of frames and plates. His recent interest was directed toward continuum damage mechanics and the theory of material with oriented structure. Professor Sawczuk made significant original contributions to the theory of anisotropic plastic plates, anisotropic hardening models of metals and rocks, post-yield behavior of shells and plates, and recently to anisotropic damage theory using tensor function representation. He was author or coauthor of 130 technical papers, 8 books and editor of 7 volumes of proceedings of conferences and symposia.

Problems of limit analysis of plates are presented in the book, *Grenz-tragfähigkeits-Theorie der Platten (Theory of Limit Analysis of Plates)*, coauthored with Th. Jaeger, Springer Verlag, 1963), one of the first texts in this field that is frequently referred to in the technical literature. A survey of plastic shell problems was presented in *Inelastic Behaviour of Shells* (coauthored with W. Olszak, Noordhoff, 1967). More recent texts written for didactic purpose are *Introduction to Mechanics of Plastic Structures* (in Polish, 1983) and *Introduction to the Theory of Plastic Bodies* (in Polish, coauthored with R. Izbicki, 1984).

Antoni Sawczuk was widely known not only as an active and prolific researcher, but also as an organizer of numerous scientific conferences and symposia. Most notable were two international symposia on "Foundations of Plasticity", Warsaw, 1972, and "Plasticity Today", Udine, 1983. These symposia attracted the interest of most prominent researchers working in this area and provided an excellent forum for the exchange of ideas and the generation of new developments. He was also chairman of national and international conferences such as the IUTAM Symposium on "Optimization of Structural Design", Warsaw, 1973, Euromech Colloquia, as well as the sectional chairman of several SMiRT conferences, etc. The feeling of the international community of researchers for the need of personal interaction and cooperation was deeply understood by him. He had students and coworkers in many countries, and devoted much time and effort to guiding and inspiring young researchers.

Besides his research activity Professor Sawczuk was also heavily involved in managing research at the national level, acting as the Head of the Polish Committee of Mechanics. Such problems as transfer of research results to practical applications, teaching of mechanics at universities, research trends important for technology, etc. preoccupied him, and he published several papers on these topics.

Despite his heart illness he did not slow down, thus disregarding the advice of his friends who were much concerned with his condition. As the Rector of CISM at Udine, he continued planning new courses and

conferences, traveled to give lectures and seminars, and intensely conducted his own research. It was during his last visit to Grenoble University in May that he died suddenly of a heart stroke.

Looking to the past, I see the life of Antoni Sawczuk as totally dedicated to science. There are many of us who profited much by knowing, interacting with, and being inspired by him. In these difficult times our mechanics community needs such outstanding personalities who can unite the role of researcher, manager, and leader in the field.

Selected Publications:

W. Olszak and A. Sawczuk, "Experimental verification of limit analysis of plates, Part I", Bull. L'Acad. Polonaise des Sciences, C1, IV, Vol. III, No. 4, 1955, pp. 195-200 (in English)

Olszak, W. and Sawczuk, A. (eds): Inelastic Behavior in Shells, P. Noordhoff, Groningen, Netherlands 1967