

IN MEMORIAM

Stojan V. Petrović, Ph. D.
A retired full professor

March 7, 1941 –July 4, 2018

***Member of the National Editorial Board
of the journal THERMAL SCIENCE***



Professor Stojan Petrović, Ph. D., was born on March 7th, 1941 in Varvarin, Serbia. In 1945 his family moved to Brus, where he started primary school. Later on, in 1955, his family moved to Belgrade where he graduated from primary and high school (XIV Belgrade Gymnasium). He enrolled at the University of Belgrade, Faculty of Mechanical Engineering in 1959, graduating in 1964, at the Department for Internal Combustion Engines with his thesis being on racing engine design.

After graduating he started working in the automotive engines factory “21 May” in Belgrade, as an engineer in engine design bureau. He spent 1964/65 in military service in Banja Luka, after which he returned to the factory “21 May”, where he was the engineer responsible for establishing the production of the 1300-type engine and has gained considerable experience in the construction and production of engines.

In February 1968 he was elected as assistant at the Faculty of Mechanical Engineering in Belgrade, at the Department of Internal Combustion Engines. In this position he held practice classes in a number of engine subjects: Engine Theory, Engine Design, Engine Equipment, Engine Fundamentals, *etc.* In addition to his work at the Faculty of Mechanical Engineering in Belgrade, he was engaged as an assistant at other faculties and held courses in Constructive Geometry, Engineering Graphics, and Machine Elements at the faculties of Transport and Traffic Engineering, Technology and Metallurgy, and the faculty of Mining and Geology in Belgrade as well at Military Academy in Belgrade.

He started postgraduate studies at the Faculty of Mechanical Engineering in 1969, finishing in 1974 with his master thesis: *Contribution to Study of the Problems of the Effect of Mixture Formation System on Engine Exhaust Gases Toxicity*. During his professional training in England 1975 and 1976 at the University of Loughborough, he gained experience in the field of experimental measuring of flame propagation in the engine combustion chamber, and this experience was used in the preparation of his Ph. D. thesis on the subject: *Propagation of Flame and the Possibilities of Gasoline-Engine Operation with a Homogeneous Lean Mixture*. He gained his Ph. D. degree in 1979 at the Faculty of Mechanical Engineering in Belgrade.

He was elected as assistant professor (Docent) in 1982, then as an associate professor in 1987, and finally in 1993 as a full professor at the Department of Internal Combustion Engines at the Faculty of Mechanical Engineering in Belgrade. As a lecturer he held the les-

sons of the courses: Engine Theory, Engine Design, and Marine Engines. Besides that, he held the lectures of engine subjects at the Faculty of Mechanical Engineering in Kraljevo (from 1980 to 1986), at the Faculty of Mechanical Engineering in Skopje, (from 1986 to 1991) and of the subject Marine Engines at the Military Academy in Belgrade (from 1998 to 2001).

Professor Petrović transferred his theoretical and practical knowledge to the generations of students, who were very fond of him as a teacher because of his style, which was both informal and at a high professional and scientific level. In general, he was a very relaxed and bright-spirited in communication with colleagues and students. He impressed with his visions, cheerfulness, humour and optimism, and he was known for his lucid remarks and jokes.

For many years, prof. Petrović was the Head of the laboratory for engines, and from 1993 to 2005 he was the Head of the Department of Internal Combustion Engines of the Faculty of Mechanical Engineering. In October 2006 he went into regular retirement but continued to give the lessons on engine subjects for two more years as well as work on the finalization of on-going projects. He was a mentor to about 60 graduate students, as well as 6 master theses of postgraduates and 5 Ph. D. theses. At the postgraduate studies in Belgrade, he held lectures on the course of Formation of the Mixture and Combustion in Engines.

The main professional and scientific preoccupation of prof. Petrović was the work on engine functioning processes in order to improve performances, fuel economy, and especially to enable the reduction of harmful exhaust emissions. He was studying these problems theoretically and as well as experimentally by engine testing, including very sophisticated measurements of combustion characteristics within the combustion chamber and toxic components formation in exhaust gases. In this sense his contribution to the upgrading of the engines laboratory and the development of experimental installations is immeasurable, in particular his engagement in design and upgrading of the installation for the continuous measurement of the exhaust gases composition.

Prof. Petrović managed numerous projects in cooperation with the motor industry, among them six major projects with the support of the Ministry of Science are listed:

- *The Development of Family of Middle Swept Volume Anti-toxic Gasoline Engines*, OZNB and DMB, 1986-1988. The results: optimised DMB engine 1000A related to power output and fuel consumption and homologated in relation to exhaust emission; developed turbocharged engine of 1100 ccm with original pistons and homologated on lifespan of 300 hours; 3 prototypes realised and built into the Yugo car for experimental driving.
- *Electronic Control of Gasoline and Diesel Engines*, OZNB, DMB, IMR and IPM 1988-1991. The results: development of the engine of 903 ccm swept volume with single point fuel injection; realised turbocharged engine of 1400 ccm swept volume.
- *Investigation and Development of the Theoretical and Experimental Methods of Gasoline-Engines Combustion Chamber Optimisation*, RFN 1107, 1991-1995. The results: developed numerical methods of quasi-dimensional and multi-dimensional engine working process modelling simulation; verified on two engine combustion chambers.
- *Reduction the Toxic Emission of Diesel Engines*, RFTR, MFB, IMR, 1994-1997. The results: developed and tested the turbocharged Diesel engine based on the engine IMR DM 33.
- *Scientific Bases for the Engineering of Engines and Motor Vehicles*, MNT 11M03CB1, 1996-2000. The results: developed theoretical and experimental methods for engines and motor vehicles improving.
- *Technologies and Equipment for Reduction of Toxic Emission of Mobile Sources*, MNT, IMR, DMB, MFB, INV, IAZ, MFK, 1994-1997. The results: defined solutions for fitting into existing emission control regulations.

Prof. Petrović collaborated with almost all Faculties of Mechanical Engineering in former Yugoslavia (Kragujevac, Nis, Novi Sad, Sarajevo, Podgorica, Ljubljana, Skopje, *etc.*) as well as with the companies in the field of engine industry (DMB, IMR, IPM, Zastava, PDM, Famos, Tam, Tomos, Cimos, *etc.*). During his career he also established the collaboration with a number of foreign institutions from the field of engines. He visited the Universities of Loughborough, Manchester, Cranfield, Thessaloniki, Dresden, Timisoara, and Darmstadt. In London he visited the Imperial College, Kings College and Quince College. Additionally, he made short visits to the research and development centers of the automotive industry: Ricardo Institute (England), Development Centre of General Motors in Vern (Detroit, Mich., USA), Ford Development Centre in Dearborn (Detroit, Mich., USA), Fiat Development Centre in Orbassano (Torino, Italy), Technical Development Centre Opel in Russelsheim (Frankfurt, Germany), National Research Centre in Napoli (Italy), Development Centre Renault in Lardy (France), French Institute of Oil in Paris (France), *etc.* He also visited the production lines of leading engines, vehicles and equipment manufacturers like Opel, Volkswagen, Mercedes Benz, Ford, Porsche, Bosh, Fiat, Renault, PSA, Audi, *etc.*

Prof. Petrović was Serbia's leading expert in the field of engine and motor vehicle exhaust emission. He was dealing with these problems theoretically and experimentally and he held a large number of lectures, participated in numerous professional and scientific meetings and published a large number of articles. Among his professional activities in this area, the most important was his participation in the group of experts of United Nations for pollution and energy ECE (as the leader of the Serbian delegation from 1991 to 2009). He also participated in the World forum for motor vehicles exhaust emissions regulations harmonization UN ECE (from 1990 to 2004 as a member of the Serbian delegation). In addition to that, he was the chairman of the Pollution Working Group in Serbia, the member of the Working Group for Motor Vehicle Emission and from 2005 to 2010 the member of the Directory of the National Program for Energetic Efficiency.

Prof. Petrović was a regular participant in practically all professional and scientific meetings in Serbia in the field on engines and motor vehicles, most of the time giving a lecture. At these conferences he was usually the member of the scientific board and chairman of the engine sections. Among great world meetings he participated with a lecture at SAE Congresses (Detroit, Mich., USA), SAE FL Meeting (Toronto, Canada), ISATA Congress (Stockholm, Sweden), FISITA Congress (Torino, Italy), Biogas Congress (Beijing, China). He published numerous papers in professional journals, two teaching books, and participated in 6 monographs.

Prof. Petrović provided a great contribution to the editing of the scientific journal *Thermal Science* as the subject editor for the field of internal combustion engines. He performed this responsible job with an extraordinary ability to recognize the potential quality and actuality, even in the first version of the articles by younger authors with little experience. Gradually and patiently, with advices and suggestions, he helped them reach the desired quality. He was working at this position from 2008 to 2013 and again from 2017 until his death in 2018. In this period, he edited 7 issues devoted to processes in internal combustion engines, use of bio fuels, energy efficiency of traffic, and related topics, with 168 selected papers. From 2010 he was also the reviewer of the international journal *Energy* (published by Elsevier).

The overall contribution of prof. Petrović to the development of the profession and science in the field of internal combustion engines in Serbia is very high. He left an indelible mark in the process of educating engineers as well as in research, protecting the environment

from pollution from mobile sources, and also in the field of professional and scientific publishing. Not only were his achievements great, but so was the ability of his unbeatable and exploring spirit to always create a positive atmosphere, encourage his colleagues and students and support them in their own creative work.

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