

*In memoriam*

## **Life and Work of Prof. Dr Dragutin M. Veličković**

This Special Issue of Serbian Journal of Electrical Engineering is dedicated to the founder of this Journal, Prof. Dr. Dragutin Veličković, who deceased on December 20th, 2004. The papers of this Issue were presented at the 7<sup>th</sup> International Conference on Applied Electromagnetics PES 2005, held in Niš, from May 23<sup>rd</sup>-25<sup>th</sup>, 2005, and many of the authors were professor's collaborators, who dedicated their papers to him.



Prof. Dr. Dragutin M. Veličković was born on August 27<sup>th</sup> 1942 in Niš. He enrolled Electrotechnical section at Technical faculty of Niš in 1961, and received his degree on October 13<sup>th</sup> 1965. He became teaching assistant for the subject Theoretical electrotechnics in February 1969. From March 1969 he worked at Faculty of Electronic Engineering in Niš. He successfully defended his M. Sc. Thesis *Application of Hamilton's variational principle in theoretical electrotechnics with the special turn to linear antenna theory* at Faculty of Electrotechnical Engineering in Belgrade in 1969. He defended his doctoral thesis *New method for determining high-frequency voltages on the insulators for sectioning of the guys of antenna masts* in Niš in 1973, and became assistant professor for the subject Electromagnetics in 1973. From that day on, Prof. Dr Dragutin M. Veličković became synonym, with all his heart and soul, for the subject Electromagnetics at Faculty of Electronic Engineering of Niš. From February 1978 to July 1981 he worked at Electrotechnical Faculty in Priština, as professor for Electromagnetics and after that again at Faculty of Electronic Engineering of Niš. He became Full Professor in July 1984. From March 1985 to December 2004 he was Chief of the Department for Theoretical Electrotechnics at Faculty of Electronic Engineering of Niš.

He published more than 360 papers on international and domestic conferences. He was regular and certain participant of the ETRAN Conference,

Chairman of the ETRAN Section for antennas and propagation and reviewer of many papers. His greatest contribution to Serbian science and electromagnetics is his patent of a lightning protection rod with circular loop in 1988, which was included in National Standard JUS N.B4.811 for the lightning protection. His lightning protection rod was granted with Tesla Award in 1993 and experimentally proved by Japanese researchers. This rod was installed on over 500 objects in Serbia and Macedonia.

He was a leader or an associate on many scientific and research projects financed by Republic Ministry of Science and Serbian Academy of Sciences and Art. He invested great efforts in the realization of the Joint Project under the sponsorship of German Academic Exchange Service (Deutscher Akademischer Austauschdienst, DAAD) in the framework of the Stability Pact for South-Eastern Europe. In the framework of this Project, from 2000 to 2004, many young researchers and collaborators, non-graduated and graduated students, doctoral candidates and professors received scholarships for the short-time stays abroad and successful lecturer exchange between these and other faculties. This Project helped them to exchange the knowledge and ideas with their colleagues and scientists from abroad, made it possible for them to reach contemporary scientific literature and software programs, computers and other equipment, to exchange experience in teaching methods and laboratory exercises on other faculties, and to organize International PhD-Seminars. As the result of fruitful collaboration with colleagues from Germany and Bulgaria, the textbook for graduate students "Fundamentals of Modern Electromagnetics for Engineering" was published at Technische Universitaet Ilmenau, sponsored by German Academic Exchange Service (DAAD).

During his academic career Prof. Dr. Dragutin M. Veličković developed research activities in many areas, especially in the field of electrostatics, antenna theory, transmission line theory, electrodynamics, anisotropic media, lightning protection and other different electromagnetic problems. In June 1973 he defended his doctoral thesis under the leadership of Prof. Dr. Jovan Surutka, and solved problems of static and high-frequency voltages on the insulators of guys of MF/LF broadcast tower antennas. He used new method based on integral equations for the currents both on the antenna mast and on the guys, solved by using Method of Moments. He published a lot of papers and contributions on antenna theory problems. Together with Prof. Dr. Jovan Surutka, he determined input impedance of the V-dipole antenna, using variational principle and trigonometric probe functions for the current, in 1969. With his collaborators, he published papers dealing with a variety of antenna problems such as: symmetrical dipole antennas, V-antenna, H-antenna, cage antenna, circular loop antenna, antennas with staggered dipoles, arbitrarily shaped wire antenna structures, with linear or curvilinear conductors, in the presence of perfectly/imperfectly

conducting ground or in the presence of rotational conducting bodies. There were many new ideas in these contributions for solving different electromagnetic problems: new method for solving electrostatic problems with rotational symmetry, improvements for charge simulation method for computing electrostatic fields, electrostatic protection with systems of linear and toroidal electrodes, numerical program for plan-parallel electrostatic field solving, nonlinear electrostatic field solving and his equivalent electrodes method. He was especially proud of this method, because he solved a lot of problems and published a lot of papers using it himself or together with his collaborators. This method for solving quasi-stationary electromagnetic fields, as well as other potential fields, he explained for the first time in his paper in 1987. He used this method to determine equivalent radius of antenna conductors, for electrostatic field calculations, for LF grounding systems, for stationary magnetic fields, for lines, for fluid electrodynamics, for applications in the theory of heating, for determining electromagnetic field of lines with axial slit, for cable terminations, for obtaining systems for homogeneous electrostatic fields, for projecting of lightning protection installation, etc.

Prof. Dr. Jovan Surutka, member of Serbian Academy of Sciences and Arts, was his teacher and his friend for all these years of his fruitful scientific work. In his speech, during the PES'05 Conference, Prof. Dr. Jovan Surutka said:

*“For all that you have done as professor, scientist and a person, as a teacher of new generations of engineers and scientists in electrotechnics, you will stay forever in hearts and memory of electrotechnical engineers from our country and in the memory of all that had known you. It is the most beautiful and ever lasting monument that a man can build for himself during his short existence on earth. We could hear, in these last sad days, words of respect and admire for you and your scientific, professional and pedagogic work, words of gratitude and gratefulness for what you have done for many of our institutions and persons. Unfortunately, even your respectable personal results in science where not enough stimulus and motive for us, your friends and admirers, to start the procedure for your deserved candidacy for the member of Serbian Academy of Sciences and Arts. Although there were such ideas, they were not strongly supported as you deserved. That remains shadow on our conscience.”*

Prof. Dr. Dragutin M. Veličković was extremely good lecturer and students used his lectures as textbooks. He published valuable book “Methods for calculation of electrostatic fields,” in 1983, textbook “Electromagnetics,” in 1994 (first edition) and 1999 (second edition), and together with his collaborators the textbook “Assembly of solved problems for the Electromagnetics exam,” in 2000. He was unselfish when dividing his knowledge with his students, graduate and postgraduate, with masters of science and doctoral candidates, professors and colleagues. He had more than thirty doctoral candidates that

finished their theses, much more masters of science and a great number of graduate diploma candidates. Many of his M. Sc. and D. Sc. holders are successful scientists also at other departments of Faculty of Electronic Engineering of Niš, at other faculties in our country and abroad.

Prof. Dr. Dragutin M. Veličković was the founder, the Chairman and the devoted organizer of the First Serbian Symposium on Applied Electrostatics PES in Niš, in 1984, which became international symposium in 1990. It changed name to International Conference on Applied Electromagnetics in 2001. Organized under the sponsorship of DAAD and Serbian Ministry of Science, it had great number of participants and showed fruitful collaboration with other faculties from the country and abroad. Very successful 7<sup>th</sup> PES 2005 Conference on Applied Electromagnetics was dedicated to the memory of Prof. Dr. Dragutin M. Veličković.

Thanks to his great authority and his cooperation with the colleagues from Technical Faculty of Čačak, where he was teaching at basic and postgraduate studies, he initiated founding of an international scientific journal at Technical Faculty of Čačak. He succeeded in gathering eminent scientists in Editorial Board of Serbian Journal of Electrical Engineering and the first number of the Journal was issued in November 2003. It has been successful in publishing original scientific papers and its quality has been improved since then. We hope that we can follow and continue his successful work devoted to enhancing Serbian Journal of Electrical Engineering and make it better with every issue and every year.

Editor