

A TRIBUTE TO PROFESSOR LJILJANA PETKOVIĆ'S 60th ANNIVERSARY

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Dr Ljiljana Petković is a full professor of mathematics at the Faculty of Mechanical Engineering of the University of Niš, Serbia. She has worked at this Faculty since 1976. In the year 2013 she celebrated her 60th birthday and 37 years of her professional career.

Ljiljana Petković was born in Banatski Karlovac in Vojvodina. She attended elementary school in Negotin and then in Niš. After having finished the Grammar school in Niš, she enrolled in the Faculty of Philosophy - Department of mathematics. After graduation in 1975, she continued postgraduate studies at the Faculty of Natural and Mathematical Sciences in Skopje (Macedonia, the former republic of Yugoslavia) with Professor Novak Ivanovski as the mentor. She received her Master's degree in 1982 with the thesis "*On continuous spectrum of operator*", which belongs to the field of functional analysis.

Besides functional analysis, Ljiljana got interested into interval analysis, a new and expanding branch of applied mathematics at the time. The ideas and achievements of interval analysis attracted a lot of attention in the scientific circles and Ljiljana was one of the pioneers who started research in this field together with professor Miodrag Petković, her husband. The collaboration that has been lasting lasts till present.

The interest in interval analysis started by establishing scientific contacts with Professor Karl Nickel, the director of the Institute of Applied Mathematics at the University of Freiburg. This institution was one of the major centers of interval mathematics, together with the University of Karlsruhe (Germany) and the University of Wisconsin (USA). The Institute of Freiburg had several eminent researchers in this field, boasted a rich library on the topic, and regularly organized meetings which gathered the most important contributors in interval mathematics. Ljiljana was a participant of II and III *International Symposium on Interval Mathematics*, held in Freiburg (Germany) on 1980 and 1985.

Professor Ljiljana Petković made a study visit in Freiburg in 1984, where she had presented the framework of her doctoral thesis and made the final consultations

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with Professor Nickel. The thesis dealt with the construction of analytical complex functions over interval domain with realization in circular complex arithmetic, and studied algebraic properties of such circular forms and gave some aspects of application. Ljiljana defended her doctoral dissertation "*On some approximations by disks*" at the University of Kragujevac in 1985 with Professor Gradimir Milovanović as the mentor. She was the first woman who had received a Ph. D. degree in Mathematics in Niš.

The fields of research of Professor Ljiljana Petković are interval analysis and numerical mathematics. Apart from complex interval functions, she has considered algorithms (realized in complex interval arithmetic) for solving nonlinear equations and for the matrix inversion (papers written in the collaboration with professor Jürgen Herzberger). Another field of her research has been devoted to numerical mathematics, more precisely, to the development of numerical methods for solving nonlinear and, particularly, polynomial equations in ordinary (complex) arithmetic. This resulted in a number of papers where many very efficient methods of high convergence order have been developed.

Professor Ljiljana Petković wrote 8 books and about 100 scientific papers, 43 of which were published in the respectable scientific journals from Thomson-Reuter JCR (SCI) list. She is the co-author of monographs "*Complex Interval Arithmetic and Its Applications*" (Wiley-VCH, 1998) and "*Multipoint Methods for solving Nonlinear Equations*" (Elsevier, 2012) which belong to the category of the outstanding international importance. She is also the co-author of the monograph "*Solution of Nonlinear Equations by Iterative Methods of Laguerre's Type*" (University of Niš, 2011), three textbooks, and two books from the history of mathematics. In 2005 she was rewarded by the Serbian Ministry of Science for the exceptional contribution to the scientific project and in 2010 she has got *Charter of the Faculty of Mechanical Engineering* for an exceptional contribution to the development of the faculty.

The career of professor Ljiljana Petković has a distinctive international character. She was a visiting professor at the University of Oldenburg during the summer semester in 1989 at the invitation of Professor Jürgen Herzberger under the DFG (Deutsche Forschung Gemeinschaft) grant. She got DAAD grants in 1998 and 2001 for the scientific visits to the universities in Kiel and Oldenburg. In 2003 she was a visiting scientist at the University of Tsukuba (Japan) as a guest of Professor Tetsuja Sakurai and at the University of Nagoya (Japan) as a guest of Professor Tomitsu Mitcui.

Professor Ljiljana Petković was a participant with contributions at over 50 international and national conferences and congresses, two of which were world congresses on applied mathematics, held in Paris (1987) and Athenes (1996). She was invited lecturer at many universities all over the world, among which are the universities in Freiburg, Oldenburg, Sofia, Kiel, Wien, Ljubljana, Tsukuba (Japan), Tokyo, Nagoya, Graduate University for Advanced Studies in Tokio, and Humbolt University in Berlin. In 2009 she visited Harvard University as a guest of Professor Hsiang Kung.

Professor Ljiljana Petković is a reviewer for several outstanding international

journals (e.g., Journal of Computational and Applied Mathematics, Applied Mathematics and Computation, ZAMM, Reliable Computing, Mathematical Reviews, Zentralblatt für Mathematik), and several national journals and conferences. She has been a member of the editorial board of Facta Universitatis, and a member of the American Mathematical Society (AMS) for many years. Together with Professor Carsten Carstensen, she organized the summer school *International Summer School on Mathematical Foundation of Finite Element Method*, held in 2003 in Niš, which was attended by young researchers from Serbian universities.

Professor Ljiljana Petković has spent her whole career working at the Faculty of Mechanical Engineering starting from the position of assistant in 1976 till the full professorship in 1996. She has lectured various courses for undergraduate, graduate, postgraduate and doctoral students. She was a mentor of one doctoral dissertation. She was a vice-dean of the Faculty of Mechanical Engineering, head of the Department of mathematics, and member of various professional bodies of the Ministry of Education and Science, or University of Niš and the Faculty of Mechanical Engineering. Since 1981 up to now, she has participated in a number of projects funded by the Ministry of Education and Science.

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