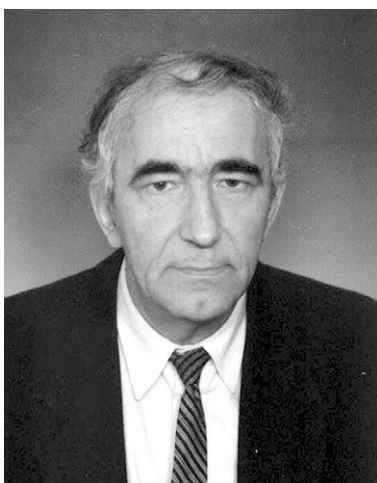


In Memoriam: Aleksandar Nešić (1934-2017)



ALEKSANDAR D. NEŠIĆ was born on April 21, 1934 in Paraćin, Kingdom of Yugoslavia, as the first of three sons of Dušan and Miroslava Nešić. He graduated in 1960 from the University of Belgrade's School of Electrical Engineering, Department of Electronics and Telecommunications. He obtained the magister degree in electrical engineering defending the thesis "Microwave Antiresonance Antenna Array Fed by Coplanar Strips" in 1982 and the PhD degree defending the doctoral dissertation "Slot Antenna and Slot Antenna Arrays on Dielectrical Substrate fed by Coplanar Waveguide" in 1984, both from the University of Belgrade. In 1985, he was elected as a scientific advisor of the Institute of Applied Physics. In 1989 he became an associate professor and in 1995 a full professor at the University of Belgrade's School of Electrical Engineering, both in the field of antennas and microwave techniques. In 2000 he became a full member of the Yugoslav Academy of Engineering Sciences. He was married to Mara and had two children: Dušan and Branislava and five grandchildren: Marija, Milica, Aleksandar, Radoslav and Milan.

CAREER

The career of Aleksandar Nešić started back in 1959 and he remained professionally active until his death on October 21, 2017. His first employment as a development engineer was in the former company of Pupin, a part of the Electronics Industries. In 1962 he became the chief of the Company's USW department and from 1974 until 1978 he held the position of R&D division manager. In 1973 he was elected as an expert consultant of the Institute of Applied Physics. From 1973 until 1977 he participated in the establishment of the Institute's microwave laboratory. He formally joined the Institute of Applied Physics in 1978 as a general manager's consultant. In 1979 he became head of the microwave and electronics division and in 1985 he achieved the title of scientific advisor. In 1993 the Institute of Microwave Techniques and Electronics was formed and he was its general manager until 2012.

From 1974 until 1979 he was the secretary of the commission for radio communications of the Yugoslav Electrical Committee and a member of a number of other commissions of the same Committee. In 1976 he became a member of the study group at the Yugoslav Electrical Committee. From 1974 until 1978 he was a member of the Council for Electronic Counter-Countermeasures (ECCM) of the Yugoslav Secretary of State for Defence. Since 1986 he was a member of the electrical engineering board of the Republic Department of Science and from 1999 a member of the board for technical and technological sciences of the Serbian Ministry of Science and Technology. From 1986 he was a permanent member of the paper review board of the European Microwave Conference and occasionally a member of technical program committees and paper review boards of several other European and local conferences including Microwave and Optronics (Germany), MICROCOLL (Hungary) and TELSIXS and ETRAN (Yugoslavia/Serbia). From 1993 until 1996 he was a member of the European Microwave Conference Management Committee. In the late 1990s he was the consultant of Sony Europe R&D Center based in Stuttgart. At that time he also maintained active contacts with Dresden University of Technology.

Aleksandar Nešić took part in more than 300 scientific, research and technological projects. More than 30 of them were co-financed by the Serbian Ministry of Science and Technological Development.

He was the author or co-author of more than 350 papers including a distinguished monograph published by Artech House of London, 4 chapters in significant international monographs, 98 papers published in scientific journals and at international conferences and about 90 papers published in domestic journals and at local conferences. He registered 16 patents in EU, USA, Japan, Canada and China and 3 in Serbia. At present, the Scopus database shows his 256 citations in renowned scientific journals and monographs and 200 citations in patents - 450 citations altogether.

Aleksandar Nešić was awarded the Maxwell Prize of the British Institution of Electrical Engineers in 1986, the Prize of the Institute of Applied Physics in 1979, the Prize of the Institute of Microwave Techniques and Electronics in 1997, the Charter of the Faculty of Electronic Engineering in Niš in 2000, the Medallion of ETRAN in

2004, the Prize for Lifetime Achievement of the Association for Microwave Techniques and Technology in 2005, the Big Charter of ETRAN in 2006 and the Meritorious Service Award of ETRAN in 2013.

PROFESSIONAL AND ACADEMIC ACCOMPLISHMENTS

Scientific activities of Aleksandar Nešić extended over several different fields of research: ultrasound, radio communications with the accent on VHF and UHF microwave and millimeter wave ranges, printed antennas and active printed antenna structures operating in microwave and millimeter wave ranges and periodic microwave filter structures.

From 1960 until 1975, Aleksandar Nešić managed the research, development and realization of a large number of completely transistorized HF, VHF and UHF portable and fixed radio stations operating at 64-76MHz and 146-174MHz ranges. At that time (1967), they were the first completely transistorized mobile radios in Europe operating at the above-mentioned frequencies and having over 2W output power. More than 15,000 pieces of such devices were produced and began to be used by the Yugoslav Army, the police, electric power distribution companies, railroad companies, medical ambulances, water supply companies, etc. A considerable number of these devices were exported to the USSR and Switzerland. Many of them are still used today.

In 1973 Aleksandar Nešić took part in the establishment of a microwave laboratory within the Institute of Physics, which later became the Institute of Applied Physics. His intention was to create necessary scientific and technological conditions for an independent and successful research and development work in the field of microwave and millimeter wave techniques. This was the first laboratory of such kind in Southeast Europe.

In 1976 Aleksandar Nešić began to manage the research and development of wideband radar detectors operating at 8GHz to 40GHz frequency ranges for the needs of the Yugoslav Army. He designed original substrate integrated detector modules that included wideband printed antenna arrays integrated with PIN modulators and a beam-lead Schottky detector. Until then, the similar devices were based on conventional waveguide fabrication techniques. The first papers describing similar integrated printed antenna structures in millimeter wave ranges appeared 15 years later.

In the late 70s he introduced strip and pentagonal dipoles that operate at the second resonance (antiresonance) in wideband printed antenna arrays as well as new solutions for feeding networks that enabled design of arrays with wider bandwidth, lower side lobes and fewer losses.

In 1982 he was the first in the world to introduce the feeding method of printed slot antennas realized with coplanar waveguide (CPW) on dielectric substrates. This method enabled realization of uniplanar antenna structures printed on either a dielectric or a magnetic substrate. It was not before the beginning of the nineties that this method with no alternative for integrated and active antenna structures appeared in print.

He also introduced a new method of analysis of dipoles in inhomogeneous field (dielectric or magnetic) and enhancement of Booker's concept of complementary electromagnetic structures in a homogeneous medium to inhomogeneous structures. For the paper presenting this method, he received the IEE Maxwell Prize.

During the nineties, Aleksandar Nešić conducted the research and development of microwave radio links and systems for digital signal transmission operating in various microwave ranges. These systems were manufactured in the production department of Institute IMTEL and exploited by the national telecom operator, the police, the air traffic services and the local radio and TV stations.

Aleksandar Nešić introduced a number of novel types of printed antenna structures: wideband printed arrays with linear and circular polarization operating at ranges up to 75 GHz for the fourth generation of mobile systems, printed antennas with circular polarization and conical radiation pattern for mobile, satellite and in-door communication systems and new wideband printed sector antennas.

Since 2007 he was engaged in the research of novel printed antenna structures integrated with various reflector structures, scanning beam antennas, cosecant beam antennas and flat-top beam antennas.

His remarkable personality of a talented engineer, a creative leader and a hardworking scientist, his world-class results in the field of microwave techniques and his contributions to the establishment, development and achievements of the Institute of Applied Physics, and later the Institute of Microwave Techniques and Electronics, will always be remembered by many colleagues with whom Professor Nešić worked side by side during his long and successful career.