

TEODOR SISIANU

MEMBER OF ACADEMY OF SCIENCE, PROFESSOR, AND SCIENTIST OF EXCELLENCE

(80th anniversary)

Doctor in physics and mathematics (1978), Professor (1980), correspondent member of the Academy of Sciences (1995), Elite Engineer of the Institute of Electrical Engineers UK (CEng., Fellow of IEE, 1995). Research domain: physics of semiconductors and dielectrics, microelectronics, semiconductor devices, nanotechnology, sensors.



Higher education: Faculty of Physics and Mathematics, Tiraspol State Pedagogical Institute (1953–1958); postgraduate studies at the Institute of Semiconductors of the USSR Academy of Sciences in Leningrad (1961–1964); scientific researcher at the University of Colchester, England (1970–1971); scientific collaborator finishing his doctoral dissertation at the Ioffe Physicotechnical Institute, Leningrad (1975–1977); scientific researcher at the Technical University of Budapest, Hungary (1983); improvements in the TEMPUS Project for Master studies in England, France, and Germany (1996–2001).

Professor Teodor Sisianu is a famous personality with exceptional biography, with honors in science and graduate studies. At the age of 15, he remained without parents, who were deported to Siberia (1949); he had no home and nobody to support. Being a son of a "kulak," he managed not only to survive, but to become one of the most honored professors and scientists in Moldova, who is known in many countries. When asked "How did you manage to survive under those conditions?" he gave an unequivocal answer, "I was supported by seven years at home, my parents who were excellent personalities, and then by my professors, teachers, scientific leaders, colleagues, friends, and certainly by my precious family, I thank them a lot."

T. Sisianu was formed as a teacher by passing all necessary steps: Pedagogical School, followed by practice of teaching in the school for three years, higher education at the State Pedagogical Institute, and then practice assistant and lecturer at the same Institute. These 8 years

of study in educational institutions, 3 years of work as a school teacher, and 50 years as a university professor have contributed to the formation of a Great personality in education.

As a scientist in the field of microelectronics, physics and technology of semiconductors and microelectronic devices, he was formed in the most prestigious scientific centers of the USSR and the UK in 1960–1970, during the emergence and fast development of new science and technology directorate called semiconductor microelectronics. It is this new area in which, in 1961–1965, T. Sisianu was happy to support and pass entrance examinations for doctoral studies, support the thesis and work as a young professional in the most prestigious scientific center "Institute of Semiconductors, Academy of Sciences of the USSR," which was founded and headed by famous scientist academician A.F. Ioffe in Leningrad. After an excellent training as a young scientist, doctor of physics and mathematics in semiconductor microelectronics, in 1965 he was invited to the Polytechnic Institute (Technical University of Moldova today), where he has been working till the present time.

In 1970–1971, he conducted scientific research at the University of Colchester, England, under the supervision of famous professor B.K. Ridley. In 1975–1977, he conducted scientific research at the Ioffe Physicotechnical Institute, Leningrad under the supervision of its the first leader, famous professor B.I. Boltaks. Scientific research in these Centers of Excellence and Centers of scientific internships in England, France, Germany, and Hungary have contributed to the personality of T. Sisianu as a scientist recognized in the world, including bibliography of over 280 publications and over 120 scientific papers at various International Conferences in England, Italy, France, India, Poland, Russia, Romania, Ukraine, Latvia, Hungary, and other countries.

Everybody knows T. Sisianu as a personality with a very high level of culture, humanity, and civic dignity shown during the entire activity. All people who collaborated and collaborates with him—teachers, students, colleagues, friends, managers, subordinates—acknowledge this fact. It is these qualities of personality that characterize Teodor Sisianu as a Man of Excellence over 80 years, scholar and educator of the highest qualification for 60 years, including 48 years as a professor at the Technical University of Moldova.

Let us mention only some of the results of Prof. Sisianu as a scholar and teacher.

He is recognized as one of the founders of the Polytechnic Institute (Technical University of Moldova today, TUM); one of the initiators of organization of the Microelectronics Plant "Mezon" in Moldova; the founder of the new direction in science and education in the Republic Moldova, TUM: microelectronics and semiconductor devices (1965–2003); the head of the Department of Microelectronics and Semiconductor Devices for 24 years (1981–2003); the organizer of medical electronics specialization with 12 promotions (1994–2006), based on which the specialty Biomedical Engineering was organized (2007 to present).

He is the founder and organizer of the first European Master Studies in R.Moldova, TUM, in the frame of Tempus Project (Pr-JEP in 1995–1997, JEP, 1997–2001) he prepared and trained 40 professors in universities of England, France, and Germany and developed 32 new courses for Master studies in the current areas of Information Technology, Computer networking, Optical communications, Microelectronics and Biomedical systems, Computer aided design etc., which served as basis studies in UTM and other universities of Moldova. He founded and organized the first specialized class for master studies with computers, Internet and Distance Education (1999–2008, UTM–England–France–Germany).

Academician Sisianu performs scientific research on the physical basis of the reliability and degradation processes in microelectronic materials and devices, technology diffusion processes

for the production of microelectronic devices, photovoltaic cells and sensors based on monocrystals of A3B5 semiconductors, i.e., GaAs, InP, InAs, and GaP.

He is the founder and leader of the scientific school in microelectronics: he supervised and trained 15 doctors in physics, mathematics and technique and helped to develop over 70 PhDs, associate professors and professors; supervised 47 master theses, more than 130 undergraduate diplomas; contributed to the education of more than 2000 licensed engineers in microelectronics, over 190 licensed engineers in microelectronics and medical electronics, founder and leader of the first scientific laboratory "Physics and technology of semiconductor A3B5 (GaAs, InP, InAs, GaP) (1966–2001), reorganized the International Center "Modern Technologies for Education and Research," TUM (2001 to present). He is the author of over 280 scientific papers and reports in various national and international journals (*Physica Status Solids*, *Semiconductors*, *Thin Solid Films*, *Sensors and Actuators*, *J. Electronics*, etc) and more than 120 scientific papers presented at various national and international conferences (England, France, India, Italy, Latvia, Palone, Romania, Russia, etc.) He published five monographs and textbooks, including "Diffusion and processes of degradation in semiconductor materials and devices" and "Optical communications."

Prof. Sisianu initiated and conducted various scientific projects: International (8 projects) Projects Union, USSR (28 projects), national and institutional projects (5), which significantly contributed to the development of science and education in Moldova, UTM, including techniques and technologies and about 100 computers and other equipment for studies and research.

The following International projects were initiated and completed by the author:

INTAS (1993–1995), Soros (1994), COPERNICUS (1997–1999), Tempus (1995–2001), MRDA/CRDF (2005–2007), Romania bilateral scientific projects - R. Moldova (1998–1999), Italy-Moldova bilateral scientific projects (2011–2012), Project Scientific Sweden, Moldova (2012–2013) in collaboration with scientists from different countries: England, France, USA, Germany, Italy, Sweden, Romania, Russia, etc.

Between 1970 and 2013 he was invited as a professor at various universities in other countries: Essex University, Colchester, England (1970–1971), Technical University of Budapest, Hungary (1983), University of Sheffield Hallam, England (1993), University Hertfordshire, England (1997), Institute ENIC, Lille, France (1998, 1999), the National Institute of Telecommunications in Paris, France (1999, 2000), Technical University of Darmstadt, Germany (1998, 2000), Research Institute of Naples, Italy (2011), and Linköping University Sweden (2013).

Prof. Sisianu developed and implemented the following new postgraduate courses:

Industrial Electronics (based on semiconductor devices, 1965), Electronic semiconductor devices (1966), Theory and calculation of microelectronic devices (1967–2004), Micro- and nanoelectronics devices (2004 to present), and Fundamentals of microelectronics (1968–1970) as well as Special Courses: Current Issues in Microelectronics and Nanotechnology (1982 to present), Transducers and sensors (1996 to present), and Smart Sensors and Microsystems (2010 to present).

Prof. Sisianu is very active in many high-liability management activities:

- First Chairman of the Committee of Experts on Technical sciences, CNAA, Moldova (1992 -1995); Vice-Chairman of the Scientific Board Specialized on theses in physics and mathematics, Academy of Sciences of Moldova (1980–2003), reviewer and committee members to support theses (2003 to present); Invited to various international scientific projects; member of the organizing committee of International Scientific Conferences (England, France, India, Italy,

Greece, Poland, Russia, etc.); Vice-president of the physics of Moldova (1985–1996), vice-president of the Association of Engineers in Moldova (1994–2004); between 1980 and 1994 he was a Chairman of the Coordination Council of the USSR and CIS on the scientific problem "Reliability and degradation processes of microelectronic devices and systems."

- Organizer of seven International and Union Conferences (1982-2004), member of the organizing committees of 17 various international conferences (England, India, Italy, Hungary, Russia, Romania, etc.).

- Assembly member of the Academy of Sciences of Moldova from 1995, Member of the TUM Senate from 1980, member of Faculty Council (FCIM) from 1978, Member of the Editorial Board of Scientific Journals from Moldova, Romania, Ukraine, member of the ethics committee of the Academy of Sciences of Moldova and Technical University of Moldova.

For outstanding results in science and education, Teodor Sisianu was awarded the following honors:

- The State Prize of the Republic of Moldova in science and technology, 1983;
- The medal "Meritul Civic," 1994;
- Elite Engineer of the Institute of Electrical Engineers, UK (CEng., Fellow of IEE, 1995);
- Medal of the Academy of Sciences "Dimitrie Cantemir," 2003;
- Medal "Nicolae Testemitanu," 2003, State University of Medicine and Pharmacy;
- Diploma of Honor of the Academy of Sciences of Moldova, 2008;
- Gold Medal, UTM, 2013.

Professor Sisianu has made an important contribution to the development of scientific research and the preparation of scientific and engineering graduate studies for the economy of Moldova.

This year, 2013, distinguished Professor Sisianu rounded Honourable jubilee of 80 years, who scored the notch of 55 years as a scientist (1958 to present) and 61 years as a teacher (1952 to present) including 48 years at the Technical University of Moldova; on this occasion, the Technical University of Moldova, Academy of Sciences, and the entire scientific community and staff express sincere congratulations, wishing him unimpaired health, happiness, and great success in the future.

We can list many activities and mention more fruitful and outstanding results of Professor, Dr. habilitate, Corresponding member of the Academy of Sciences of Moldova T. Sisianu; we confess that he is a personality we are proud of and we appreciate all his highest honor as a Scientist, Professor, and Gentlemen of excellence.

Academician I. Bostan, rector of UTM

Academician V. Canter, president of CCAA