

Dumitru Tsiulyanu

Professor at the Department of Physics, Technical University of Moldova, Republic of Moldova

Website:

Scientific profiles

<https://www.researchgate.net/scientific-contributions/D-Tsiulyanu-7187714>

<https://scholar.google.com/citations?user=U-pWsYAAAAJ&hl=ro>

Orchid: <https://orcid.org/0000-0003-3711-4434>

Expertise

Professor Dumitru Tsiulyanu's actual research activity includes the investigation of basic physical properties of chalcogenide semiconductors and their application in electronics, including gas sensors and memory devices. In this field he has been active for more than 45 years and has achieved outstanding performances in the scientific direction related to the phenomena of surface, contact and electrode, in which he established the principles and prerequisites of forming the contact barrier at the interface of metals with wide-gap chalcogenide materials; discovered the phenomenon of electrostimulated chemical transformations at the interface of glassy chalcogenides with metals, as well as that of photostimulated deformation of the surface of this junction; advanced the concept of using the injection and (or) extraction of electric charge carriers through the interface of isotype crystal-glass heterojunctions for the study of the spectrum of electronic states of the disordered material; elucidated the semiconductor properties of artificial dimorphite and the possibility of their application in ultraviolet photovoltaics; suggested the hypothesis (later confirmed experimentally) of the possibility of the interaction of lone-pair electrons of chalcogens atoms with the atoms of gas molecules adsorbed on the surface of the solid, which may lead to changes in the predominant mechanism of electrical conductivity; proposed a new method of studying the photo-diffusion process of metals in chalcogenide glasses, which allowed to highlight the new prerequisites of this unique phenomenon.

The results of scientific activity is reflected in over 230 published papers the 9 books chapters, 53 papers in prestigious journals with impact factor and the 17 patents and inventions of Germany, Russia and the Republic of Moldova.

He is the head of the CIMAN research center, from Physics Department of Faculty of Electronics and Telecommunications from Technical University of Moldova. Holder of the honorary title "Inventor of the USSR" (1985) and Correspondent Member of Academy of Science of Moldova (2017) in the field of Material Science <https://www.asm.md/> Leader of many R&D national and international projects. Visiting professor at the Bundeswehr University in Munich from 1994 to 2005, of the German Scientific Society (DFG) 2006, Co-director of the NATO Institutes of Advanced Studies, 2014 and 2017.