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2nd International Conference on Natural Hazards and Disaster Management

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Scientific Tracks & Abstracts Day 1

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The competing pressures paradigm: A conceptual model for improving emergency and business continuity plans

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isasters and catastrophes are becoming more frequent and devastating in terms of deaths and financial losses. This requires an ever-vigilant approach to enhancing our preparedness for such eventualities. The two dominant streams of preparedness are the risk and vulnerabilities approaches, which are used in various forms around the world. This paper focuses on emergency and business continuity planning, a staple of the risk-based approach. An applied model for enhancing the effectiveness of all-hazards emergency and business continuity planning is presented. The Competing Pressures Paradigm (CPP) is a conceptual model that combines academic and practitioner best-practice, drawn from emergency and business continuity planning and visual methodology. The diagrammatic model draws out 3 core issues, namely legislative (the Law) and organizational compliance (internal and multi-agency) and managerial preferences (the Boss), which are critical to secure plan sign-off. Planners are required to juggle and more often than not satisfice rather than satisfy, these diverse pressures in order to secure the necessary authorizations. However, meeting these requirements does not guarantee that a plan will work in practice. The CPP encourages greater focus on two critical ancillaries but, sometimes forgotten pressures and pro-active strategizing to address the competing pressures. Firstly, the needs of the plan's end-user, which can be overlooked whilst, focus on legislative and organizational issues. Compliance requires depth and technical language, rather than an action oriented user-friendly approach that can be readily employed under stress conditions. Secondly, greater focus on the needs of survivors as the primary driver of the planning process which is required to ensure that the life, property and environment ethos is not over-shadowed by other pressures. The CPP promotes critical review of and a proactive approach to management of these five competing pressures to engender more effective planning and ultimately greater response efficacy.

Biography

Tony McAleavy specializes in emergency and disaster management focusing on command and control, multi-agency interoperability and emergency preparedness. He is having experience in the Competing Pressures Paradigm (CPP) as both H M Coastguard and Ambulance Service Officer and within local government emergency management.

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Better modeling durations to better characterize heat spells: A new approach to estimate extreme temperatures in the nuclear safety field

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ethods for characterizing Extreme Temperatures (ETs) and heat waves hazards were often used in the literature by Mapplying the extreme value theory but rarely with duration modeling. Systems more susceptible to the ETs have another temperature which we designate herein as the long duration anticipated temperature. For a modern risk-based approach, knowledge of the magnitude and frequency of occurrence for a given duration and number of exceedances are prerequisites. Yet despite its obvious importance, ETs durations have been often excluded from the modeling. However, the notion of duration is not easily interpretable in a frequency analysis and can even be subtle. Few methods have been proposed in the literature to tackle this issue. The most important contributions propose the Temperature-Duration-Frequency (TDF) concept. However, the relevance of the TDF estimates in relation to a risk-based assessment for Nuclear Power Plants (NPPs) is questionable. Indeed, the durations considered in this concept are given in consecutive days while some ETs exceeded a number of nonconsecutive days/year are important, as well. Indeed, ETs exceeded non-consecutive d days/year in a future horizon is important for periodic nuclear safety review during the NPP's life and in design and conception of new equipment's. As a matter of fact, the non-consecutive exceedances are nothing else than the annually r-Largest-Order-Statistics (r-LOS). This paper presents a new and more rational approach to estimate a design temperature considering events durations. The approach is based on the set of temperature r-LOS-frequency (TrF) curves. The Orange station in southern France is used as a case study. Annual ETs of duration r=1...10 non-consecutive-days are used and 10:100 years return periods are used. These estimates are then used to construct the TrF curves that provide estimates of extreme hot temperatures for a given return period, for various durations of practical interest. Finally, we strongly believe that the probability of high temperatures related failure over an equipment lifetime is an important piece of information an engineer can communicate, if it is associated to the duration of spells.

Biography

Yasser Hamdi has his specialization in the analysis of the risk associated to hydrometeorology, environmental and climate extremes. He has obtained his PhD in Civil Engineering from Laval University, Quebec, Canada. He has developed several approaches and tools for the estimation of extreme events on local and regional scales, developed several methodologies and computer softwares that deal with a range of problems in the field of water and environmental engineering. He also has an experience in the use of historical information in local and regional frequency analyses to characterize river and marine flooding hazards and in the frequency estimation of extreme temperature in a non-stationary context.

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Cyclone warning and people's expectation: A case study of cyclone Aila affected area, Bangladesh

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Bare most common in Bangladesh. About 6-10% of the world's tropical cyclones generate at the Bay of Bengal. Because of its geographical feature, frequent cyclones and cyclone induced storm surge is one of the critical issues of development concern of Bangladesh. Historical records show that Bangladesh experiences severe cyclone every four and one-half years and it cost huge loss of lives and damages. It is about 2 decades it was calculated that approximately 75% of global deaths due to cyclone take place in Bangladesh. Though the number of death has been reduced, in the last decade, Cyclone Sidr caused deaths of about 3,460 people and by latest severe cyclone Preparedness Program (CPP), multipurpose cyclone shelter program and such other disaster management initiatives of government and non-government organizations, number of death in cyclone has been reduced significantly. Nonetheless, cyclone warning system is not yet so much familiar to the local rural community. According to the local people's perception due to lack of different expected information, during cyclone, people become panic and fail to take right and timely decision that can save their lives and assets. Cyclone warning system needs to incorporate such information and guidance to minimize loss and damage. With an empirical study in the cyclone Aila affected area of Bangladesh, this paper aims to examine the limitations of warning system. It is expected that this research outcomes would facilitate to have an improved need-oriented cyclone warning system for coastal community of Bangladesh.

Biography

Gulsan Ara Parvin has her expertise in disaster risk reduction and community resilience. She is basically an Urban and Rural Planner. She has 20 years of teaching and research experience. She has published about 50 research papers in different national and international journals and books. She had also worked as a Visiting Scholar at Department of Urban Studies and Planning of Massachusetts Institute of Technology, USA.

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Social perception of natural hazards in the province of Alicante, Spain: A comparative analysis

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Natural risks are natural processes that can have their function in nature, but when they manifest they have a direct impact on societies and on the environment. Historically, the human being has been subjected to the threat of natural phenomena, such as floods, earthquakes, volcanoes, forest fires, etc. The exposure to risk is always associated with the territory or geographical area inhabited. The risks, far from being reduced, increase in a world of increasing population and colonization of the territory. From environmental psychology, natural hazards are interpreted as stressful experiences that the individual or community must face, looking for the most appropriate strategies for each situation. We propose a comparative analysis between two different samples of the population of the province of Alicante (Spain). The data has been obtained by adapting the same measurement instrument and following a similar procedure, but taken in two different time periods, 2012 (Ramos R, Olcina J Y, Molina S 2014) Y 2017 (Senabre J). The results indicated that the threat perception of natural hazards has increased and that society perceives in a more pessimistic





way the evolution of the impact of natural phenomena. The main perceived threats (forest fires, drought, desertification, extreme temperatures and floods) are maintained in both studies, although there have been significant changes in the level of importance that society gives each one of them. The risk of drought is the only threat that doesn't offer qualitative changes in perception, occupying the second place in both cases, although there are differences at a quantitative level. Likewise, the data indicate that, in recent years, the society has received more information about of this type of risk. The studies on risk perception are a good tool for improving risk management and for the development of environmental policies appropriate to each specific territory.

Biography

Jaime Senabre is a Psychologist and Environmental Consultant. He had completed his Doctoral studies in the Department of Personality, Evaluation and Psychological Treatment of the UNED. He is the Chief of Brigade in a Forest Fire Service with more than 20 years of experience. He collaborates with several companies and institutions in training psychology in emergencies and human resources. He is a Professor at the University of Valencia, Spain. He is also the Director and President of the International Scientific-Professional Committee of the National Symposium on Forest Fires. He has published articles on forest fires, stress, psychosocial risks and emotional trauma, mainly in relation to emergency services and natural disasters. Currently, he is assigned to the research group on climate and territorial planning at University of Alicante, where he researches on the social perception of forest fire risk and behavior in the event of possible disasters.

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Special Session

Day 1

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Space based weather and climate extreme monitoring

Yuriy Kuleshov Bureau of Meteorology, Australia

t is widely recognized that there is a need to better utilize and improve the monitoring of extreme weather and climate events from space. In February 2017, the World Meteorological Organization (WMO) convened the first international workshop on Spacebased Weather and Climate Extremes Monitoring (SWCEM). The workshop stimulated a dialogue amongst satellite operators, WMO regional climate centers and national meteorological and hydrological services and provided recommendations on the utilization of space-based observation data and products for operational monitoring of weather and climate extremes in response to the current and future user requirements. Following the workshop's recommendations, WMO executive council decided at its 69th session (EC-69) to agree on conducting a demonstration project on SEMDP in WMO regions. The demonstration project is established to run initially for two years (2018-2019) and will be focused on weather and climate extremes such as drought and heavy precipitations over the South-East Asia and the Pacific. Meteorological service of Australian Bureau of Meteorology will play a leading role in implementation of the SEMDP. Space based data and derived products form critical part of the bureaus operations. Current operational products of the Australian bureau of meteorology for drought monitoring are derived from surface-based observations and typically focused on identifying rainfall deficits over extended periods (months to years) using percentile (decile) analysis. As for extreme precipitations, they are typically diagnosed on a monthly time scale. Using space-based observations; it would be possible to monitor extreme precipitation events over shorter periods from pentads up to a month. Monitoring weather and climate extremes on shorter time scales is considered by the bureau as a valuable extension of its operational products to enhance climate services for Australian users.

Biography

Yuriy Kuleshov is a Professor and Academician, affiliated with the Australian Bureau of Meteorology and the Royal Melbourne Institute of Technology University. He has authored 15 book chapters and 70 papers in peer-reviewed journals. His main research interests are climatology of severe weather phenomena (tropical cyclones, thunderstorms and lightning); satellite remote sensing for monitoring of severe weather and climate and seasonal climate prediction. For lifetime achievements in satellite remote sensing of the Earth's environment, he was elected as an Academician of the Russian Academy of Engineering Sciences.

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Realizing the national disaster management policy of Sri Lanka through public private partnerships

K W A M Kokila and Matsui Kenichi University of Tsukuba, Japan

Sri Lanka's disaster management policy aims to protect lives and developments in disaster affected areas by effectively using resources for disaster risk reduction, emergency management and community awareness. However, funding for these action programs has become a serious challenge to the country's economy. This paper examines the extent to which Private Public Partnership (PPP) can facilitate and expedite disaster management works. In particular, it discusses the results of the questionnaire survey among policymakers, government administrators, NGOs and private businesses. This questionnaire was conducted in 2017. All respondents were selected based on their experience in PPP projects in the past. The survey focused on clarifying the effectiveness of past PPP projects as well as their efficiency and transparency. The respondents also provided their own opinions and suggestions to improve the future PPP projects in Sri Lanka. The questionnaire was distributed to 15 persons. The results showed that almost all respondents think that PPP projects are beneficial and important for future disaster risk management in Sri Lanka. The respondents, however, showed some reservation about effectiveness and transparency of the PPP process. This paper also discusses the results on the respondents' perceptions about their capacity regarding human resources and management. This paper, overall, sheds light on technological, financial and human resource management practices in developed countries as well as policy and legislation provisions regarding PPP projects. The good practices categorize under the basic four stages of disaster management cycle and through this paper it discusses how those practices can implement in Sri Lanka.

Biography

K W A M Kokila is pursuing her Masters in Environment Science at University of Tsukuba, Japan. She had completed her undergraduate degree in Uva Wellassa University, Badulla, Sri Lanka. She started her career as an Assistant Secretary, Ministry of Disaster Management, Sri Lanka. During her career in the ministry, she had involved in administrative and technical aspects of disaster management. Further, she has represented Sri Lanka in some of the international and national conferences and workshops related to disaster management.

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Scientific Tracks & Abstracts Day 2

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Improvised peer networks for flash flood warning

Sudha S Arlikatti Rabdan Academy, UAE

Statement of the Problem: The floods of 2017 in South Asian countries including India, Nepal, Bangladesh, Pakistan, Thailand, Philippines and Indonesia are evidence that flood hazards are a serious threat to millions worldwide, claiming approximately 20,000 lives annually. Specifically, expanding our understanding of flash flood warning systems is extremely important because these are unexpected events and increasing due to the climate change phenomena.

Methodology & Theoretical Orientation: This study is used for variables from the Protective Action Decision Model to guide data collection about 316 survivors' immediate responses to the 2013 flash floods in the hilly State of Uttarakhand in North India.

Findings: Results showed that the official warnings from the police or government agencies and the media were nonexistent in the first days of the disaster. Over half the respondents were at home and their first source of warning were environmental cues like hours of heavy incessant rains, hearing the violent sounds and seeing the river flowing with debris, followed by watching their neighbors and friends evacuate. Less than the sixth of the respondents received face-to-face warnings from other villagers and a few received text messages from family members in the highlands. Surprisingly, very few villagers were injured or lost family members. A majority of the fatalities were tourists from outside the State, there on a pilgrimage.

Conclusions & Significance: Despite lack of prior flash flood hazard experience, heavy damage to homes and villages and no official warning messages with details of what to do-- evacuate uphill or downhill, shelter in place, basic survival items to carry and how much of it, information on availability of relief aid services etc., an overwhelming majority evacuated within the first four hours of receiving cues and survived. While most warning and risk communication literature focuses on what government agencies can and need to do, this study demonstrates that community members traditional knowledge of the terrain, understanding of environmental cues and integration into improvised peer warning networks determined their immediate behavioral responses and ultimate survival and recovery. Recommendations are made on how to integrate these informal networks into government initiated early warning systems.

Biography

Sudha S Arlikatti has over a decade of private sector experience as an Architectural and Planning Consultant in India and Oman and over 14 years of disaster research and teaching experience in the USA. She is currently an Associate Professor in the Business Continuity and Integrated Emergency Management programs in the Faculty of Resilience at Rabdan Academy, UAE. Her research interests include disaster warnings and risk communication in multiethnic communities, protective action decision-making, post-disaster sheltering and housing recovery, use of decision support technologies for emergency management and organizational and community resiliency to natural and intentional hazards. She has published 26 articles in notable disasters, public administration and environmental management journals, 12 book chapters, an edited book and numerous reports. She is currently serving as the Vice President of the Research Committee on the Sociology of Disasters (RC39) with the International Sociological Association.

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Is there any relationship between the spatiotemporal variability of ozone concentration in the Pacific Ocean and ecosystem phenology in the Drakensberg mountains?

Geoffrey Mukwada University of the Free State, South Africa

Climate change is posing a threat to ecosystem health in mountain regions. Mountain environments are not only fragile because they are easily being affected by extreme climate conditions, but they also provide signals of climatic change and its impact on ecosystem phenology. Based on both vegetation and climate indices, this study assesses how ecosystem phenology within the Namahadi catchment area of the Drakensberg Mountains in South Africa has been affected by climate change. In recently published research, it had been shown that the variability of ozone concentration in the Pacific Region was responsible for drought occurrence across southern Africa, while it was also revealed that there are sentinel pristine sites within the catchment from which the impact of climate change can be effectively assessed.



Using climate data from CRU-TS and Landsat images, climate and vegetation indices for the pristine sites were computed and correlation analyses undertake to determine, if there were any teleconnections between the variability concentration of ozone in the Pacific Ocean and climate indices and vegetation phenology at the pristine sites. Based on the results, the study concludes that it may be possible to predict drought once extreme signals of ozone concentration have attained specific thresholds in the upper troposphere and lower stratosphere. This knowledge is important for drought monitoring and disaster preparedness in mountain areas.

Biography

Geoffrey Mukwada is an Associate Professor in Environmental Geography and is based at the University of the Free State in South Africa. His research primarily revolves around natural resource management, climate change and rural livelihoods. He has published more than 30 papers in accredited journals. He is the Founding Coordinator of the Afromontane Research Unit at the University of the Free State and is the current Coordinator of the living and doing business in Afromontane Environments theme of the ARU.

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Land use change detection and urban extension at Abu-Rawash Environs, West Cairo, Egypt

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A bu-Rawash environs covers about 80 km² of the northern part of the Western Desert, at 10 km southwest of Greater Cairo, Egypt. It represents the exclusive exposure of Cretaceous rocks and structures in the north Western Desert. It displays excellent model of the stratigraphic and structural architecture of the north Western Desert subsurface hydrocarbon provinces. Urban development through the last five decades led to partial and complete obliteration of several locations at Abu-Rawash area. Temporal Google images of different sources and historical aerial photographs were used to detect and evaluate the land use changes due to successive urban development, declaring of geologically protectorate sites. The present study describes image processing techniques of remotely sensing data in change detection by anthropologic activities of Abu-Rawash Environs as development of new urban sites, roads and quarries.

Biography

Ahmed Gaber Shedid Ibrahim is a Professor of Hydrogeology, Geology Department, Faculty of Science, Fayoum University, Egypt.

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On the possibility of earthquake predictions while observing binary planetary earth-moon system in a modeled Kozyrev's space

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A ccording to a Russian astrophysicist N Kozyrev's hypothesis, time is a link between all-natural phenomena and it plays and active part in all of them. By comparing the data on the number of earthquakes and lunar events from B Middlehurst's catalogue (B Middlehurst,1967) N kozyrev determined that there was a connection between Earth's tectonic processes and various lunar events evident from the material properties of time. N Kozyrev demonstrated that astronomical events observed on the moon take place sometime before earthquakes on our planet. At the same time when the significant periodical weakening of the Earth and the Moon crusts happens it allows the gravitational pull of the Moon to affect the Earth's tectonics, this process repeats every 14 days. Kozyrev's research opened up new ways to detect earthquakes 2 weeks prior to them happening on Earth. The development and testing of the new seismical prognosis method became the focus of this research. By using the quantum mirror superposition of consciousness method, it became possible to detect and describe natural phenomena during the relative weakening of the cause and effect relations, the tectonic catastrophes being the prime example. The prospects of such prognosis via ISRICA's Kozyrev's mirrors' seismic activity in the vicinity of the San Andreas geological fault. The accuracy of that prediction made 2 weeks prior turned out to be 90%, with the recorded intensity of the earthquakes (measured according to the Richter's scale) as well as time and place of them occurring all matching the prognosis protocol data almost perfectly.

Biography

Kuznetsova Taisia has obtained his PhD in Cardiology from Novosibirsk State Medical University. He is the Chief of Rehabilitation Department in Meshalkin's Novosibirsk State Biomedical Research. Currently he is the Director of the Apsara Wellness Centre. He was a Contributor to International Scientific Research Institute of Cosmic Anthropoecology (ISRICA). He has participated in ISRICA's various research projects: Pakal Votan, Solar Eclipse, Holographic Eclipse, OARION, etc.

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About the possibility of priority registration of natural disasters in the low frequency range of the channel ionosphere-earth-man in the modeled space Kozyrev

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uring the time of the conducted researches in modeled the Kozyrev space (ISRICA) using the method of gas discharge visualization (Computer kirlianography by K Korotkov) been identified the effect of resonant enhancement of the spectral density of the luminescence of the human body in the frequency range, related to Schumann resonance in the group of volunteers (n=38), was 48 hours before the solar flares. Thus, the bio-field structures of people in the Kozyrev space in advance responded to solar and atmospheric storms. According to a hypothesis of astrophysics N Kozyrev, time makes the connection between all the phenomena of nature, actively participates in them that are allowed advanced event registration not yet implemented in the present. To develop and test of the method of advancing the registration of seismo-volcanic disasters in the associated micro-pulsations harbingers in the low frequency range of electromagnetic oscillations of the ionosphere and man, was applied cardio-spectral analysis Veda Pulse (company Biokvant, Russia). This device is designed for recording low-frequency components in the dynamics of cardiac activity of the operator, located in the Kozyrev mirrors to perform a predictive task. In 11 Aug 1917, during the influence micro-tectonics electromagnetic radiation one of the natural objects (mountain Rtanj in Serbia) we have register forced synchronization mode hearts of two remotely separated (4,500 km) of volunteer's researchers, had been staying in the Kozyrev space by two the same device Veda Pulse. Received fact created the scientific basis for further recording cardiospectra of person in the Kozyrev mirrors in the days, had been predicted for natural disasters in 2018. Virtual predictive monitoring by cardio-spectral analysis in the Kozyrev mirrors will be continued during remote information bridge between Novosibirsk and Melbourne 26-27 July 2018.

Biography

Olga Oseeva is a Physician, Cardiologist, graduated from medical school. She has worked in various programs of International Scientific Research Institute of Cosmic Anthropoecology. She has mastered and successfully applied the method of registration cardiospectra on the device Veda Pulse (company Biokvant, Russia) in scientific research as part of ISRICA. Currently, she is working as a Doctor in Academician E N Meshalkin Novosibirsk State Research Institute of Circulation Pathology. Her research interests include heliobiology, cosmic anthropoecology, helioclimatopathology, preventive medicine and cardiology.

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Possible ways to neutralize bio pathogenic radiation

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In our work we focus on the part of our accumulated material on the subject, illustrate a further impact of the Hartman net and base stations of mobile phones on a living through the geodynamic zones. Geodynamic zone of the Earth are solar receptors and techno pathogenic influences. Techno pathogenic effect, a set of factors and processes that have any kind of negative effect or impact on living organisms resulting from scientific and technological progress of mankind. It was determined that the installation of masts base stations and wind turbines at the intersection of the fault zones, which is a natural migration of groundwater, or geo-pathogenic zone, causes the appearance of artificial radiation of these zones and the spread of radiation occurs along areas faults or discontinuities along the axial in the soil. Constant exposure to natural and artificial radiations can cause changes in behavior, the state of aggression or depression (sometimes to the point of suicide), constant fatigue, sleep problems, partial loss of memory, problems with concentration, stress. All electronic devices generate like natural cosmogenic fields-technical torsion fields. Large number of free radicals produces in the body under their influence. To prevent a negative impact on the living need to harmonize the physical vacuum. The action of these harmonization devices is based on the elimination of the asymmetry of physical vacuum components. Simple harmonizing device consists of several elements, which were recorded the left and right torsion fields before. We have developed the device of the physical vacuum harmonization. When the device is a plug in the power line network the physical vacuum is harmonized. It is necessary to pay much attention to theoretical issues of influence of technical torsion fields on the human body and alive and biomedical research, one of the main areas of the study natural and technical torsion fields must be brought to a new level.

Biography

A R Pavlenko has completed his PhD from Sevastopol Polytechnic Institute. He is the Director of Spinor International and Head of the Laboratory of the Electron Devices and Chair at Kiev Polytechnic Institute. He has published more than 50 papers in reputed journals, 7 monographs, several patents of Ukraine, America and France. He has been serving as a Member of the Editorial Boards of a scientific periodical *Ukrainian Journal of Physical Vacuum and Nature*.

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