

INFORMATION TECHNOLOGY IN THE HOLY LAND

Sergey Grodzensky



Professor of Moscow Institute of Radiotechnics and Electronics.
Doctor of Sciences. Member of the Academy of Quality Control
e-mail: grodzensky44@mail.ru

Abstract

The Second International Symposium on Applied stochastic models in reliability theory, the science of life and management of processes that determined the abbreviation SMRLO'16 (The Second International Symposium on Stochastic Models in Reliability Engineering, Life Science and Operations Management) has been held in the city Be'er Sheva (Israel).

Keywords: symposium, SMRLO, reliability theory

The Second International Symposium on Applied stochastic models in reliability theory, the science of life and management of processes that determined the abbreviation SMRLO'16 (The Second International Symposium on Stochastic Models in Reliability Engineering, Life Science and Operations Management) has been held in the city Be'er Sheva (Israel). The City Be'er Sheva is located in the Negev desert, in a place where according to the Bible, the patriarch Abraham dug a well to water the flock of sheep and is also formed an alliance with Abimelech, king of Gerar, bringing with it a sacrifice of seven sheep, which gave the name to the settlement (Be'er Sheva in Hebrew, "Well of seven"). If we consider the age of the city from the first mention in the Torah, it would be about 3700 years.

Due to the UN resolution on the partition of Palestine, Be'er Sheva was departed to Arab state, but after the Arab-Israeli war of 1947-1949 Be'er Sheva became a part of Israel. The policy of dispersal of the population of the country led to the rapid growth of the city, especially in the 1990-ies, when tens of thousands of immigrants from the former USSR settled here. Now as the result the Russian-speaking population of 200-strong Be'er Sheva almost makes up the majority, and the local chess club created by immigrants from the Soviet Union became the largest in the country and regularly holds international tournaments of high level.

Modern Be'er Sheva is first of all, the city of science, the venue of the Symposium was the Engineering College. S. Shamoon. The history of this University is the following: Businessman Sami Shamoon has been involved in the so-called "Orange deal" — a famous agreement reached in the last days of N.S. Khrushchev in power, of the attend sale by the government of the USSR to Israel most of the property of the Russian spiritual mission in Jerusalem, for which Israel paid the oranges. In his later years S. Shamoon decided to immortalize himself by investing capital in the organization of the College of Engineering in Be'er Sheva, opened in 1996 and now it is bearing his name.

The forum on the "promised land" was attended by 125 experts from 24 countries. Most were from Israel and the former Soviet republics, but someone made a long-distance flight from Chile, Taiwan, and Professor Esa Sahib arrived from Iraq. I asked Sahib how he managed to come from a

country which disclaims Israel's right to exist. It turned out that the presence of the second (Sweden) citizen ship helped him to get to the symposium. S. Esa explores both local dependencies in reliability and in the political situation of his country on the basis of probabilistic and statistical concepts. Perhaps, when a scientist from Iraq completes the study, we will be able to talk about the usefulness of its findings for other countries.

At the same time the plenary session and three sections corresponding to the declared directions of the Symposium (applied theory of reliability, life science and process control) took place.

All submitted papers were distributed to three concurrent sections, corresponding to the declared directions of the Symposium (applied theory of reliability, life science and process control). The first plenary session was opened by M. A. Yastrebenetsky (Ukraine) and A.V. Bochkov (Russia), dedicated to the memory of the outstanding scientist Igor Alekseevich Ushakov (1935-2015). Professor I. A. Ushakov is known in the scientific world due to the fundamental results obtained in the theory of reliability, operations research, discrete optimization and related disciplines. In addition, he founded «Forum Gnedenko" on the internet, which became an informal association of professionals in the field of reliability. Also Igor Alexeyevich was a historian, poet and perhaps most importantly, a very faithful friend, in what the author had the opportunity to make sure not once during more than 40 years of acquaintance with him.

One of the organizers of the Symposium — Anatoly Lisnianski, an employee of the company "The Israel Electric Corp." (the main supplier of electricity in Israel and the Palestinian territories) in the overview "Application of Extended Universal Generating Function Technique to Dynamic Reliability Analysis of a Multi-state System" have shown the effectiveness of the new approach to assessing the reliability of complex multi-state systems (e.g. system with different levels of performance and availability). When using the classical Markov method in building model of Multi-state system it requires to solve a system of large (sometimes very large) number of differential equations. The task is greatly simplified if we apply Lz-transform method, based on the approach called as the universal generating function technique, the idea of which was first expressed by I. A. Ushakov in the mid 80-ies of the last century.

This method allowed the hosts of the Symposium under the guidance of Professor I. Frenkel (SCE - Shamoon College of Engineering, Be'er Sheva, Israel) to solve the problem of "Availability and Unloading Capacity Assessment of Multi-state Material Handling System, Operate in a Stochastic Material Handling Demands". The system of loading and unloading operations is presented in the form of a Markov model with 96 different states, corresponding to possible levels of process performance. In the end, the model described by a system of 288 (!) differential equations. The complex problem was solved by using Lz-transform.

The message of international group of authors Alex Karagrigoriou (University of the Aegean, Greece) Andreas Makrides (University of Cyprus, Cyprus) Vlad Barbu (Université de Rouen, LMRS, France) "On Semi-Markov Modelling and Inference for Multi-State Systems" is interesting in the fact that the moments of failures of the studied system are distributed according to the Weibull distribution, which is a fairly realistic model.

In the report of L. Epstein (School of Business, Universidad de los Andes, Chile) "Optimal Times to Adjust the Mix of Owned and Borrowed Items" the solution to the task of inventory management is given. A situation where the service provider owns the equipment, which he rents out is simulated. If its own reserves are insufficient to meet demands, the supplier may rent additional equipment from a third party. The model allows to determine the optimal timing and the corresponding amount of equipment that the service provider needs to acquire in order to replenish reserves. The approach considers a finite number of users or clients, as well as forecasted demand in the future, using past experience.

Ososkov G. A. (Joint Institute for Nuclear Research, Russia) in the message "Combined

Approach to Reliability of Great Software Complexes for Distributed Computing with Big Data in Contemporary Physical Experiments" presented the results of the development of modeling tools for grid-cloud services for systems of storing and processing large amounts of data in physics experiments. Each of these services is a complex merging of powerful computers interconnected with the software and network components. To calculate the reliability of the software a new simulation method is used, that takes into account the parameters and interconnection of components, as well as the quality of functioning of some real system by combining simulation programs with monitoring system of real grid cloud service through a special database.

In the report of Vladimir Skliarov (National Scientific Centre "Institute of Metrology", Kharkov, Ukraine) the issues of assessment of ageing and degradation of the equipment, the operation life of which reaches up to 30 years and more are considered. Based on the laws of irreversible thermodynamics the possible mechanisms of aging of equipment are analyzed. For example, the evaluation of aging and degradation of sealed enclosure system of nuclear power plant localizing safety system is shown.

The purpose of the work of Yefim Mikhlin and Ofer Sahama (Technion - Israel Institute of Technology, Haifa, Israel) "Validation of Updated Sequential Test for Standard IEC 61123" — is to validate the method of test planning based on the Wald criterion. The standard summarizes the experience of researchers of various countries on optimal truncation and an assessment of the actual risks.

The speech of the journal "Methods of quality management" editorial Board member L. Papić aroused nostalgic memories. Once Ljubisa Papić was known in Yugoslavia, a chess composer (a composer of chess problems and studies), and even published a journal in which the author of these lines — Moscow champion in chess composition, 1969 — published his works. It was so long ago! ... Now Professor L. Papić (Serbia) presented a report on the current topic "Human Factor in Mining Machines Maintenance Operations". Sad experience shows that one of the causes of the problems in the mining industries, often leading to tragedies, is "the human factor", which is manifested in different forms (negligence, omission, incorrect decision when identifying hazardous conditions, poor planning and inappropriate behavior in unpredictable circumstances, etc.). To reduce the probability of occurrence of specified event L. Papić proposes to combine a top-down approach" (Causes-effect diagram and the "Five "why?") and bottom-up (event tree analysis). Method of Causes-effect diagram and Five why?" help to identify human error, i.e. the sources of problems, and analysis of "tree event" is used as a secondary method of preventing (or reducing) damage.

At the final plenary meeting, the author made a report, co-authored with A. N. Chesalin and Ya. S. Grodzenskiy (MIREA, Moscow)"About the Effectiveness of the Statistical Sequential Analysis in the Reliability Trials", which shows the results of the comparison of the effectiveness of the classical Wald criterion, the most well-known ways of modifying it and proposed a new method for reducing the average length of the test procedures, while ensuring the required accuracy.

For the Symposium participants a trip to the ancient fortress of Masada was organized — the symbol of steadfastness of the people of Israel during the First Jewish war against the Roman Empire (66-71 years). The road went winding along the gentle slope of a hill in the Negev desert, here we passed the sign "sea Level" and we all continued to descend until he reached the shores of the Dead sea — the lowest land area on Earth, located at 422 m below sea level. No one volunteered to swim but some of the professors yet ventured to wet hands in the most salty natural water reserve of the planet.

The impressions of visiting Israel remained bright enough. I will mention only a few episodes. On the tour I turned to the young man in a long coat who I had not met at the Symposium, with the duty question "Where do you come from?". Instead of answering, he threw his coat open,

showing a gun hanging on the side. It was a "security guard", responsible for the safety of our excursion. In those days there was the "knife intifada". The words "Israel is now going through hard times" have become common because there was not a single peaceful day during almost 70 years existence of the country.

In response to my question: "How do you live in Israel?", Palestinian tour bus driver replied with confidence of propagandist of soviet times: "If you have an israeli passport, it does not matter what is your nationality and religion. It is only necessary to work for the good of the country", but after a pause he added – in real life, of course, all is not so simple." It was clear, that "all is not so simple". In classrooms in College I watched Muslim students chattering with their teacher of pronounced semitic appearance. But I noticed that at the entrance to the territory of University a girl in hijab put out the contents of the bag in front of the security guard, passed through the metal detector, with a straight face waited patiently until the guard made sure that she was not trying to get in with something forbidden. I was standing behind her, ready to turn out the contents of my pockets, he saw my business card "Russia", grinned and allowed to pass almost without inspection.

During a sightseeing tour of Jerusalem after praying with Orthodox Jews at the Wailing Wall, having blessed candles in the Holy fire in the Church of the Holy Sepulchre, I wanted to bow to the Muslim Holy sacred place. But I failed – the entrance for non-Muslims is restricted. The Symposium provided an opportunity to visit the memorial Yad Vashem – the Holocaust Museum, or as it is called in Israel "Museum of the Holocaust and Heroism". Without going into details of my innumerable impressions I'd like to say that moving from room to room, the understanding why Victory Day on May,9 is recognized in Israel as one of the major holidays grew stronger...

Usually, speaking about the "economic miracle" I mean Japan, sometimes remembering the countries of South-East Asia too. But isn't it amazing the very existence of Israel – the state that emerged in the desert, which has become advanced in the development of science and high technology. Many years ago the organizers of the Tokyo Olympics 1964 chose its motto: "the World is one – the Olympics!". Listening to the speeches of representatives of different countries at the Symposium in Be'er Sheva, I felt like exclaiming several times "the World is one – the information technologies!". And, I admit, I have a great desire to participate once again in some scientific or chess forum in the Holy land.