



# **TCSET'2012**

## **MODERN PROBLEMS OF RADIO ENGINEERING, TELECOMMUNICATIONS AND COMPUTER SCIENCE**

**Proceedings  
of the XI<sup>th</sup> International Conference  
TCSET'2012  
Dedicated to the 60<sup>th</sup> anniversary of the Radio Department  
at the Lviv Polytechnic National University**

**Lviv – Slavske, Ukraine  
February 21–24, 2012**

**Ministry of Education and Science, Youth and Sport of Ukraine  
Lviv Polytechnic National University**

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**Lviv  
Publishing House of Lviv Polytechnic  
2012**

**Міністерство освіти і науки, молоді та спорту України  
Національний університет “Львівська політехніка”**

**СУЧАСНІ ПРОБЛЕМИ  
РАДІОЕЛЕКТРОНІКИ,  
ТЕЛЕКОМУНІКАЦІЙ,  
КОМП’ЮТЕРНОЇ ІНЖЕНЕРІЇ**

**Матеріали  
XI Міжнародної конференції  
TCSET’2012  
присвяченої 60-річчю заснування радіотехнічного факультету  
у Львівській політехніці**

**21–24 лютого 2012  
Львів – Славське, Україна**

**Львів  
Видавництво Львівської політехніки  
2012**

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У книзі зібрано матеріали конференції, присвяченої науково-технічним проблемам у галузі радіоелектроніки, телекомунікацій та комп'ютерної інженерії.  
Видання призначене для науковців, інженерів та аспірантів.

## TCSET'2012

**International Conference  
“Modern Problems of Radio Engineering, Telecommunications, and Computer Science”**

**Organized by**

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***Dear Colleagues!***

Dear participants of the XIth International Conference TCSET-2012 on Modern Issues of Radio Electronics, Telecommunications, and Computer Engineering, dedicated to the 60<sup>th</sup> anniversary of the formation of the Radio Engineering Faculty in Lviv Polytechnic, I sincerely congratulate you on your participation.

The origin of radio-engineering in Galichyna dates back to the 1920's-30's. However, specialists training in such an interesting and young branch of technology was lacking then. It was not until the post-war time in 1944 that the Department named Radio Engineering and Teleautomatics was established.

Processes of restoration and development of destroyed by the war-torn national economics, rapid increase in instrument engineering (device making) and radioengineering industry in the Western Ukraine in the 1940's and 50's called for an increase in the number of specialities of radio-engineering profile; therefore, in 1952 the Radio Engineering Faculty (REF) was established by the Ministry of Higher Education of USSR in Lviv Polytechnic Institute.

During the years of its functioning, the Radio Engineering Department was reorganized many times. It was the only basic faculty in which numerous new specialities in the field of radioelectronics, communication, automation, electronic and semiconductor engineering, and computer technologies were initiated; this enabled us to form separate faculties of Lviv Polytechnic, namely, Faculty of Automatics, Faculty of Electrophysics, and Faculty of Computer Sciences.

In 2001, the Institute of Telecommunications, Radio Electronics, and Electronic Engineering was established on the basis of Departments of Radio Engineering and Electrophysics. The establishment has been carried out on the principles of relation and integrability of the curricula for specialists training in the branches of sciences and technologies dealing with vast application of electric signals for information transmission.

During the 60 years, generations of radio engineers made considerable contributions into common achievements of Lviv Polytechnic as well as into development of radioelectronic branch of technology, education, science, and culture of this country. Among them, a wide range of laureates of state prizes in the branches of science, technology, and education, famous scientists, leaders of industrial and scientific establishments, statesmen.

I wish you, dear participants of the TCSET-2012 conference, which celebrates its 11<sup>th</sup> anniversary, creative communication, good inspiration, and further cooperation with our specialists.

***Sincerely Yours,***

A handwritten signature in black ink, appearing to read 'Yu. Bobalo', written in a cursive style.

**Professor Yu. Bobalo**  
Chairman of Organizing Committee  
Rector, Lviv Polytechnic National University