



**HISTELCON
2010**

Madrid

A Century of Broadcasting

Proceedings of the 2010 Second Region 8 IEEE Conference on the History of Communications

Copyright © 2010 by the Institute of Electrical and Electronics Engineers, Inc. All rights reserved.

Copyright and Reprint Permissions:

Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page provided that the per-copy fee indicated in the code is paid through the Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923

For other copying, reprint, or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

IEEE Catalog Number: CFP10HIE-USB

ISBN: 978-1-4244-7451-6

Additional copies of this publication are available from:

IEEE Service Center

445 Hoes Lane

P.O. Box 1331

Piscataway, NJ 08855-1331

Tel: + 1 732 981 0060

Fax: + 1 732 981 9667

<http://shop.ieee.org/store/>

customer-service@ieee.org



**HISTELCON
2010**

The Second Region 8 IEEE
**Conference on the History of
Telecommunications**

Telefónica. Gran Vía 28, Madrid. Spain
3rd-5th November 2010.
<http://www.aeit.es/histelcon2010/>



asociación española
**ingenieros
de telecomunicación**



POLITÉCNICA

A Century of Broadcasting

Conference Proceedings

With the
support of:



With the
collaboration of:



Media Partners:



Contents

Welcome message, Olga Pérez, Chair of Histelcon 2010

Honorary Committee

Organizing Committee

Scientific Committee

Programme

List of Authors

Countries that participate

OPENING SESSION

The Origins of Radio Broadcasting

Prof. Dr. Tapan K. Sarkar

(Paper non available for proceedings)

SESSION I. STELLAR MOMENTS IN THE HISTORY OF BROADCASTING (I)

Stellar Moments in the History of Broadcasting (44)

Tapashree Bhattacharya and Shibantayan Mallick

Radio Broadcasting and its political use in Italy between the two World Wars (18)

Francesco Pietra, Antonio Savini and Roberto Galdi

Beginning of Radio Broadcasting in Cuba (13)

Roberto Díaz Martín

The Truth History of Radio Atlantica, 1947 (12)

Francisco Moyano Carmona

Radio Broadcasting for Modernization of Daily Life in Turkey (15)

Ahmet Oral

The Birth of the Radio in Zamora (71)

Félix Rodríguez-Barrios

SESSION II. STELLAR MOMENTS IN THE HISTORY OF BROADCASTING (II)

The Radio amateurs in the beginning of the Spanish Broadcasting (6)

Isidoro Ruiz-Ramos y García-Tenorio and Francisco Javier Martínez Galilea

First Spanish Ham Radio Congress (66)

Enric Fraile Algeciras and Isidoro Ruiz-Ramos y García-Tenorio

Boom and Demise of Shortwave Broadcasting (47)

Rafael Fernández Ruiz

The History of Television in Brazil (81)

Waslon Lopes, F. Madeiro and M. S. Alencar

Television Broadcasting in Africa: Pioneering Milestones (65)

Nnamdi Nwulu, Adeyemi Adekanbi, Tochukwu Oranugo and Yemi Adewale

Turkiye's First TV Broadcasting and Istanbul Technical University TV, ITU TV (70)

Osman Ceylan, H. Bulent Yagci, Selcuk Paker and A. Suha Calkivik

SESSION III. PIONEERS OF ELECTRO-TECHNOLOGY (I)

The Role of Russian Scientists in the History of Electrical and Radio Communication Development (23)

Boris Kruk, Sergey Sitnikov and Natalia Chupakhina

The Telephonic Work of Spanish pioneer electrician Enrique Bonnet (3)

Jesús Sánchez Miñana and Carlos Sánchez Ruiz

Marcel Kiepac – Croatian inventor in electrotechnics (4)

Ottone Novosel, Sandro Novosel and Hrvoje Belani

Contributions of the Spanish engineer Angel Gonzalez del Valle to the electric networks/circuits research from 1944 to 1964 (7)

José A. Delgado Penín

Anatoly Kitov: Technology vs. Ideology. The story about first project of nationwide computer network (38)

Vladimir A. Kitov and Valeri Shilov

Let them be the ones to invent? Spanish Pioneers of Computer and Telecommunications (60)

J. Ignacio Hidalgo and Juan Lanchares Davila

SESSION IV. PIONEERS OF ELECTRO-TECHNOLOGY (II)

James Clerk Maxwell, the founder of Electrical Engineering (79)

Tapan K. Sarkar, Magdalena Salazar-Palama and Dipak L. Sengupta

The Father of Radio: A Brief Chronology of the Origin and Developments of Wireless Communication and Supporting Electronics (80)

Magdalena Salazar-Palma, Tapan K. Sarkar and Dipak Sengupta

Popov's Experiments on the Black Sea Fleet in 1899 and 1901 (78)

P. P. Yermolov, V. V. Vorobyov and A. P. Yermolov

Principles and Evolution of Broadcasting in Spain (85)

Eugenio Fontán Pérez

Konstantin Perskiy – Russian electrical engineer, the man who coined the term “television” 110 years ago (34)

Oleg V. Makhrovskiy

Mónico Sánchez, Spanish inventor, in the Collins Wireless Telephone, Co., 1909 (41)

Juan P. Rozas Quintanilla

SESSION V. BROADCASTING AS A POLITICAL INSTRUMENT

The Role of the White House in the Establishment of a Governmental Radio Monopoly in the United States (37)

Alejandro Casasempere García and Antonio Pérez Yuste

Broadcasting and the forging of History. A case-study (2)

Jacob Baal-Schem

Shortwave Radio Development in Cuba After 1959 (11)

José Altshuler

Communications without secrets. Activities of Spanish listening and cipher services during two wars (17)

Gabriel Díaz Orueta, José Ramón Soler Fuensanta and Manuel Castro Gil

The BBC Monitoring Service – a short engineering history (30)

Peter C. J. Hill

Broadcasting in the Spanish Civil War. Military Engineers Work in the Conflict (33)

José Luis Goberna Caride

SESSION VI. A CENTURY OF RADIO REGULATIONS

From the liberalization of telecommunications to our days: Regulation, Innovation, Industry and Employment (83)

Enrique Gutiérrez Bueno and José Luis Machota Vadillo

113 years of Telecommunications Universal Service in Portugal (21)

Raquel Castro Madureira, A. Manuel de Oliveira Duarte and Raquel Matias-Fonseca

Transformation of Cable TV driven by the Satellite TV Broadcast Revolution (31)

Ali S. Al-Suhaibani

History and Development of Spectrum Policy Institution in Thailand (59)

Nattawut Ard-Paru

The birth of Digital Terrestrial Broadcasting in Europe. a brief history of the creation and the standardization phases of Digital Audio Broadcasting (DAB) and Digital Terrestrial TV broadcasting (DVB-T) (63)

Bernard Le Floch, Pierre Siohan, Rodolphe Legouable and Christian Gallard

SESSION VII. TELECOMMUNICATION: PAST, PRESENT AND FUTURE (I)

History of Telecommunications in Cyprus (20)

Ebrahim Ali Soujeri and Karen Hywel Kabaran

A Historical Approach to R+D+E in Telecommunications (26)

Carlos Blanco

Long-Distance Tropospheric Propagation Investigations in USSR Last Century (75)

German Sharygin and Ludmila Sharygina

Digital Broadcasting for context-aware services in Tourism (32)

Carlos Lamsfus, Aurkene Alzua-Sorzabal, David Martín and Diego López de Ipiña González de Artaza

Information Revolution Through Information and Communication Technology (45)

Oluwatoyin Agbonifo and Olumide S. Adewale

History of Contribution of Photovoltaic Cells to Telecommunications (62)

Junji Hirokane, Tatsuo Saga, Tetsuroh Muramatsu and Isao Shirakawa

SESSION VIII. TELECOMMUNICATION: PAST, PRESENT AND FUTURE (II)

Contributions to the History of Telemedicine of the TICs (10)

Victoria Ramos

The First Worldwide Public Packet Switching Network (40)

Luis Arroyo

From Morse Code to Terabit Communications (49)

Ivan Glesk

The Jump (52)

Antonio Luis Flores-Galea

From Experimental Packet Switching Services to e-Business Services (54)

Paraskevi Mentzelou

The unknown history of the Internet. Engineering the worldwide WiWiW.org project (84)

Andreu Veà

SESSION IX. DEVELOPMENT OF RADIO & TV TECHNOLOGY (I)

The Challenge of Realizing a New Television Service at NHK STRL (from Satellite and HDTV Broadcasting to Super Hi-Vision) (5)

Yuji Nojiri

History of TV in Siberia (14)

Ludmila Sharygina

The dawn of video tape recording and development of the helical scanning system (28)

Haruo Okuda

Satellite Communications. Technological Evolution (51)

Javier de la Plaza

A Century of Satellite Broadcasting. Development and Advancement of Radio and Television Technology (55)

Ogundele Ayansola and Adediran Y.A.

SESSION X. DEVELOPMENT OF RADIO & TV TECHNOLOGY (II)

Radio HEKAPHONE: the first pirate Broadcast Transmitter (43)

Reinhard Pfliegl and Peter Knezu

The First Spanish Short Wave Stations (16)

José María Romeo López

Historical Perspective of Anti-Broadcasting (22)

Reza Najafi

On the development of Early Vocoders (27)

Rüdiger Hoffmann

Calling All Cars: Motorola's Early Police Radios (29)

Francisco Javier Rodríguez and Ignacio Salcedo

Broadcasting: From the air to the end user (36)

Justo Rodal Pérez

SESSION XI. TELEPHONE & TELEGRAPH HISTORY

Technological Archaeology. Technical Description of the Gauss-Weber Telegraph (57)

Fernando Martín Rodríguez, Gonzalo Barrio García and María Álvarez Lires

The Influence of the Telegraph in the United States Society in the 19th Century (35)

Francisco Sáez de Adana

The American Influence in Telefónica Public Relations Strategy During the 20's and 30's (24)

Javier García Algarra

The Business and political influence of the telephony across Europe (39)

Alberto Torrens Pascual

Training Program for Crossbar Installation Testers (61)

Francisco Hornos Galván

A Century of the Telephone in Zaragoza. His Implantation and Advances (1878-1975) (42)

María de los Ángeles Velamazán

Compañía Telefónica Nacional de España: from subsidiary to leader (8)

Ángel Calvo Calvo

POSTER SESSION

Alternator type High Frequency Generator remains in the World (46)

Eiju Matsumoto

(Paper non available for proceedings)

Dynamic Spectrum Access as an Alternative Radio Spectrum Regulation System (56)

Jide Julius Popoola and Rex Van Olst

(Paper non available for proceedings)

Handmade Devices of Istanbul Technical University Students for Radio, First TV and FM Radio Broadcasting in Turkiye (72)

Osman Ceylan, H. Bulent Yagci, Selcuk Paker, A. Suha Calkivik and Osman Goren

(Paper non available for proceedings)

A critical appraisal of Digital Audio Broadcasting (73),

Gurvinder Singh Baicher

(Paper non available for proceedings)

Welcome to Histelcon 2010

We are very proud to organise in Madrid, Spain, the 2nd Conference on the History of Telecommunications, offering worldwide professionals the opportunity to meet and improve friendship and knowledge of this important sector.

The three organizations which are involved in this event are:

- The IEEE, Institute of Electrical and Electronic Engineers, which is the world most numerous international organization of engineers. Its members are around 400.000 worldwide. The IEEE has a unit dedicated to history: the History Centre. Being the IEEE such a big organization, it is divided into Regions. Spain belongs to Region 8. This Region is also committed to history and organised the first Histelcon in Paris two years ago, in 2008.
- The Spanish Association of Telecommunication Engineers, AEIT, which is a private non-profit organization that was established in 1926 in Madrid. Its members are all over Spain, and are PhD (DPhil) and telecommunication engineers. Since its formation, the AEIT has been defending the profession of telecommunication engineer, and how engineering work has to be carried out in order to improve quality of communication services, in a direct way, and to develop our society and enhance the economy, in an indirect one. Since the year 2000, the AEIT has an area dedicated to history: the Telecommunications Historical Forum, thus commemorating this year its tenth anniversary.
- The Technical University of Madrid (Politécnica), is a university that offers different graduate engineering programs and postgraduate ones. Some of the different faculties that currently belong to this university were created in the XVIII and XIX centuries, although they remained independent until 1971, when the Technical University of Madrid was established. In the telecommunications engineer curricula, there are some subjects about history that improve the knowledge that young people have of what their future profession will be.

The idea of organizing an international conference about the history of telecommunications came out in a Symposium that was organized by the Spanish Association of Telecommunication Engineers and the Spanish Society of History of Sciences and Techniques. It was held in Badajoz (Spain) in 2008, during the same dates that the first Histelcon. Some of the members of the Telecommunications Historical Forum were presenting papers. During the dinner, we thought that a very nice idea to commemorate the tenth anniversary of the launching of this Forum would be to organise an international conference. We knew that we had to get in touch with an international organization which was also interested in this matter in order to organise it together. The IEEE seemed to be the perfect partner and we decided to get in touch with it, through Pilar Molina, who told us about Histelcon. Since then, we began our work in the organization of the Conference and a few months later the Technical University of Madrid joined us in this exciting task.

I would like to thank the three organizations, the IEEE, the Spanish Association of Telecommunication Engineers and the Technical University of Madrid, that have bet for this Conference specially in a difficult time as the one we are living in.

I also like to thank to Fundación Telefónica for the invaluable contribution to this Conference and for the support we have received from them.

I also want to thank to Colegio Oficial de Ingenieros de Telecomunicación (COI), FITCE (the European Federations of National Associations of Telecommunication Engineers; Fundación de Apoyo al Museo Nacional de Ciencia y Tecnología; Fundación Dintel; Fundetel; Institution of Engineering and Technology; Instituto de Ingeniería de España; NetMedia; Real Academia de Ingeniería and Sociedad Española de Historia de la Ciencias y las Técnicas for the collaboration in the Conference, and the Media Partners Computing, eWeek, ITespresso, Redes&Telecom, and Siliconnews.

I can not forget to say something about the Scientific Committee which has done an excellent work reviewing all the abstracts in order to select the ones which are presented in this Conference (Brian Bowers, Eiju Matsumoto, Javier Nadal, Jesús Sánchez, José María Romeo, Magdalena Salazar, Manuel Sierra, Mischa Schwartz, and Rik Nebeker).

Of course, I have to give very special thanks to the members of the organizing Committee (Jacob Baal-Schem, Pilar Molina, José Manuel Huidobro Moya, Abelardo Tabuenca, Antonio Pérez) who have been working hard to make this Conference possible and the secretariat (Ana Carravilla; David Nieto, Jorge Aritmendi, María García, María del Mar Gallego, Rocío Núñez y Susana Pérez) that has been helping us with everything.

I hope this Conference will give you a better understanding of the perspective of telecommunications, and that you develop old and new friendships among different colleges who also have an interest in THIS history. Hopefully this will be translated in future cooperation.

On behalf of the Organizing committee, the IEEE, the Spanish Association of Telecommunication Engineers and the Technical University of Madrid, I would like to welcome you to Histelcon 2010 held in Madrid and I hope you enjoy it as much as we have enjoyed organising it.

Olga Pérez Sanjuán

Chair of Histelcon 2010

Honorary Committee*

President: Spanish Minister of Industry, Tourism and Trade. Mr. Miguel Sebastián Gascón.

Minister of Education. Mr. Ángel Gabilondo Pujol.

Minister for Science and Innovation. Mrs Cristina Garmendia Mendizábal.

President of the Community of Madrid. Mrs. Esperanza Aguirre Gil de Biedma.

Secretary of State for Telecommunications and Information Society (SETSI). Mr. Bernardo Lorenzo Almendros.

President of the Telecommunication Market Commission (CMT). Mr. Reinaldo Rodríguez Illeras.

President of the Royal Academy of Engineering. Mr. Aníbal Figueiras Vidal.

Rector of the Technical University of Madrid (UPM). Mr. Javier Uceda Antolín.

President of Telefónica. Mr. César Alierta Izuel.

President of the Spanish Institute of Engineering. Mr. Manuel Acero García.

Presidente del Institute of Electrical and Electronic Engineers (IEEE). Mr. Pedro Ray.

Secretary: President of the Spanish Association of Telecommunication Engineers (AEIT). Francisco Vicente Guillén

* Members who have already confirmed

Organizing Committee

Chair: Olga Pérez Sanjuán, AEIT, Spain

Vice Chair: Jacob Baal-Schem, IEEE Region 8 History Coordinator, Israel

Secretary: Pilar Molina Gaudó, University of Zaragoza, Spain

Treasurer: José Manuel Huidobro Moya, AEIT, Spain

Chair assistant: Abelardo Errejón Tabuenca, AEIT, Spain

Technical Program Chair: Antonio Pérez Yuste, UPM, Spain

Scientific Committee:

Brian Bowers (UK)

Javier Nadal (Spain)

Eiju Matsumoto (Japan)

Rik Nebeker (USA)

José María Romeo (Spain)

Magdalena Salazar Palma (Spain)

Jesús Sánchez Miñana (Spain)

Manuel Sierra Pérez (Spain)

Mischa Schwartz (USA)

PROGRAMME

Wednesday 3 rd November	Thursday 4 th November	Friday 5 th November	Saturday 6 th November
09:00-09:30 Registration	09:30-11:00 Session V. Broadcasting as a Political Instrument	09:30-11:00 Session IX. Development of Radio & TV Technology (I)	10:00-12:00 Guided Tour
09:30-10:15 Opening Ceremony			
10:15-11:00 Opening Session. The Origins of Radio Broadcasting			
11:00-11:30 Coffee Break	11:00-11:30 Coffee Break	11:00-11:30 Coffee Break	
11:30-13:00 Posters Set-Up			
11:30-13:00 Session I. Stellar Moments in the History of Broadcasting (I)	11:30-13:00 Session VI. A Century of Radio Regulations	11:30-13:00 Session X. Development of Radio & TV Technology (II)	
13:00-14:00 Cocktail Lunch	13:00-14:00 Cocktail Lunch	13:00-14:00 Cocktail Lunch	
14:00-15:30 Session II. Stellar Moments in the History of Broadcasting (II)	14:00-15:30. Session VII. Telecommunication: Past, Present, Future (I).	14:00-15:30 Session XI. Telephone & Telegraph History	
15:30-17:00 Session III. Pioneers of Electro-Technology (I)	15:30-17:00 Session VIII. Telecommunication: Past, Present, Future (II).	15:30-16:00 Histelcon 2012 Launching Meeting	
		16:00- 17:00 Closing Session	
17:00-17:30 Coffee Break	17:00-17:30 Coffee Break	17:00-17:30 Coffee Break	
17:30-19:00 Session IV. Pioneers of Electro-Technology (II)	17:30-18:00 Transfer	17:30-18:30 Posters Take Down	
19:00-19:30 Transfer	18:00-19:30 Visit of the National Library		
19:30-19:30 Transfer	19:30-20:00 Transfer		
19:30-20:30 Welcome Cocktail Reception	20:00-22:00 Gala Dinner		

List of Authors

A. Manuel de Oliveira Duarte
A. Suha Calkivik
Adeyemi Adekanbi
Ahmet Oral
Alberto Torrens Pascual
Alejandro Casasempere
García
Ali S. Al-Suhaibani
Andreu Veà
Ángel Calvo Calvo
Anton P. Yermolov
Antonio Luis Flores-Galea
Antonio Pérez Yuste
Antonio Savini
Aurkene Alzua-Sorzabal
Ayansola Ogundele
Bernard Le Floch
Boris Kruk
Carlos Blanco
Carlos Lamsfus
Carlos Sánchez Ruiz
Christian Gallard
David Martín
Diego López de Ipiña
González de Artaza
Dipak L. Sengupta
Ebrahim Ali Soujeri
Eiju Matsumoto
Enric Fraile Algeciras
Enrique Gutiérrez Bueno
Eugenio Fontán Pérez
Félix Rodríguez-Barrios
Fernando Martín Rodríguez
Francesco Pietra
Francisco Hornos Galván
Francisco Javier Martínez
Galilea
Francisco Javier Rodríguez
Francisco Madeiro
Francisco Moyano Carmona
Francisco Sáez de Adana
Gabriel Díaz Orueta
German Sharygin
Gonzalo Barrio García
Gurvinder Singh Baicher
H. Bulent Yagci
Haruo Okuda
Hrvoje Belani
Ignacio Salcedo
Isao Shirakawa
Isidoro Ruiz-Ramos
y García-Tenorio
Ivan Glesk
J. Ignacio Hidalgo
Jacob Baal-Schem
Javier de la Plaza Ortega
Javier García Algarra
Jesús Sánchez Miñana
Jide Julius Popoola
José Altshuler
José A. Delgado Penín
José Luis Goberna Caride
José Luis Machota Vadillo
José María Romeo López
José Ramón Soler Fuensanta
Juan Lanchares Davila
Juan P. Rozas Quintanilla
Junji Hirokane
Justo Rodal Pérez
Karen Howells Kabaran
Ludmila Sharygina
Luis Arroyo
Magdalena Salazar-Palma
Manuel Castro Gil
Marcelo S. Alencar
María Álvarez Lires
M^a de los Ángeles Velamazán
Natalia Chupakhina
Nattawut Ard-Paru
Nnamdi Nwulu
Ogbonnaya Anicho
Oleg V. Makhrovskiy
Olumide S. Adewale
Oluwatoyin C. Agbonifo
Osman Ceylan
Osman Goren
Ottone Novosel
Paraskevi Mentzelou
Pavel P. Yermolov
Peter C.J. Hill
Peter Knezu
Pierre Siohan
Rafael Fernández Ruiz
Raquel Castro Madureira
Raquel Matias-Fonseca
Reinhard Pfliegl
Rex Van Olst
Reza Najafi
Roberto Díaz Martín
Roberto Galdi
Rodolphe Legouable
Rüdiger Hoffmann
Sandro Novosel
Selcuk Paker
Sergey Sitnikov
Shibantayan Mallick
Tapan K. Sarkar
Tapashree Bhattacharya
Tatsuo Saga
Tetsuroh Muramatsu
Tochukwu Oranugo
Valeri Shilov
Valery V. Vorobyov
Victoria Ramos
Vladimir A. Kitov
Waslon T. A. Lopes
Yemi Adewale
Yinusa A. Adediran
Yuji Nojiri

Countries that participate

Belgium

Austria

Brazil

Croatia

France

Greece

Iran, Islamic Republic of

Israel

Portugal

Saudi Arabia

Sweden

Ukraine

Cuba

Cyprus

Germany

United States

Italy

Nigeria

Turkey

United Kingdom

Japan

Russian Federation

Spain