



QUALITY and DEPENDABILITY

PROCEEDINGS of the 12th International Conference



Sinaia, Romania
September 22nd - 24th, 2010

The Romanian Society for Quality Assurance, a professional, non-governmental and non-profit association from Romania, is actively involved in promoting the quality culture nationwide, by the means of conferences, seminars, forums, symposia.

The Conference on Quality and Dependability CCF 2010, organized by The Romanian Society for Quality Assurance at every 2 years, is part of the circuit of the successful international conferences, opinion unanimously expressed by the participants to the previous editions.

Every edition of the conference enjoys the presence of many officials and personalities, distinguished guests and well-known specialists nation- and worldwide, representatives of the business and academic environment.

The topics approached highlight new information, trends, ideas and concepts, which are essential for a market-driven functional economy.

CCF – A TRADITIONAL CONFERENCE

The first National Conference on Quality and Reliability (CCF '87), took place at Hotel "Teleferic" from Poiana Brasov, in 1987, with the occasion of the organisation of the Central Reliability Group of MIET. It was then decided that this conference should become a tradition. Therefore, the second edition of the Conference took place at the premises of "Minerva", "Diana" and "Afrodita" hotels from Baile Herculane, in 1988.

Romanian Society for Quality Assurance took over this tradition, by organizing the third edition of the Conference at Hotel "Roman" from Baile Herculane, in September 1996. The fifth edition CCF '98 was organized in the period 28th – 30th of October 1998, in Sinaia; the sixth edition of the Conference CCF '99 was organized in 1999, the 22nd – 24th of October, at Hotel "Sport" from Poiana Brasov, and in 2000, between 27th – 29th of September, the seventh edition was organized, at Hotel "Palace" from Sinaia. The eighth edition of the Conference, CCF 2002, was organized at the Casino from Sinaia, in the period 18th-20th of September 2002 and it enjoyed the presence of distinguished guests from abroad and well-known specialists from Romania. The last editions of CCF – the ninth edition was organized between 29th September – 1st October 2004 at Hotel "Mara" from Sinaia, the tenth edition (27th-29th September 2006) and the eleventh (24-26 September 2008), both organized at Casino from Sinaia, enjoyed the presence of distinguished guests from abroad and well-known specialists from Romania and were a real success.

Guest of honor of CCF 2010 is dr. Alessandro Birolini, Profesor Emeritus at Technical University from Zurich – ETH (Switzerland), international renowned expert in the field and considered a “guru” of global reliability, who will present a paper about the reliability of complete systems. CCF 2010 will be the host of the presentation, as a world premiere, of the 6th edition of the remarkable book of Professor Birolini “Reliability Engineering: Theory and Practice” (a book that is considered by the experts in the field a true “bible” of reliability), and that will be published in September 2010 at Springer. The opportunity to meet and discuss with one of the best international specialists in the reliability field, Professor emeritus Dr. Alessandro Birolini, represents for Romanian experts in the field one of the strengths of CCF 2010.

THE EVENTS SCHEDULE AND USEFUL INFORMATION

Registration of the participants will be made starting from Tuesday, 21.09.2010, 16⁰⁰hrs and Wednesday, 22.09.2010, 8³⁰hrs in the lobby of Casino Sinaia

Wednesday, 22.09.2010, 20⁰⁰ hrs – All participants and accompanying persons are invited to the Gala Dinner to be held at Hotel International
22 - 24.09.2010 - The coffee breaks will be organized in the **central hall** of the **Casino Sinaia**

22 - 24.09.2010 - CCF 2010 Secretariat will be open daily in the lobby of the Casino Sinaia, between 9⁰⁰ – 14⁰⁰

The payment of the hotel accommodation will be made to the representatives of ALCATOUR S.R.L – partner of The Romanian Society for Quality Assurance in the event organization.

COMMITTEES

HONORARY COMMITTEE:

Alessandro BIROLINI – Professor Emeritus, Switzerland, guest of honor
Sorin DIMITRIU – President of the CHAMBER OF COMMERCE AND INDUSTRY OF BUCHAREST
Michael DRECHSEL – President of THE INTERNATIONAL CERTIFICATION NETWORK – IQNet
Ioan DUMITRACHE – President of the NATIONAL UNIVERSITY RESEARCH COUNCIL
Petru IANC – Director of the General Director of Industrial Policy and Competitiveness, MINISTRY OF ECONOMY, TRADE AND THE BUSINESS ENVIRONMENT
Cristiana ION – Director of the Infrastructure of Quality and Environment Directorate, MINISTRY OF ECONOMY, TRADE AND THE BUSINESS ENVIRONMENT
D.F. LAZAROIU – Prof. dr. eng. – France, guest of honor
Costin LIANU – General Manager of the General Directorate for Export Promotion in the MINISTRY OF ECONOMY, TRADE AND THE BUSINESS ENVIRONMENT
Vlad OPREA – Mayor of SINAIA City
Ioan PITURESCU – President of the NATIONAL INSTITUTE FOR SMES
Florin Theodor TANASESCU – President of CER
Gheorghe TUCU – President of Romanian Standard Association
Ulrich SIEBERATH – Director of IFT ROSENHEIM

ORGANIZATION COMMITTEE:

Dan STOICHITOIU – President of the Romanian Society for Quality Assurance – **General Chairman of CCF 2010**
Mihaela CRISTEA
Eugen COZMA
Daniel LOLEA
Alexandru STAMATIU

SCIENTIFIC INTERNATIONAL COMMITTEE:

Ioan C. BACIVAROV – Professor at the POLITEHNICA University of Bucharest, Romania – **Chairman**
Michele CANO – Professor at West Scotland University, Paisley, Great Britain – **Co-Chairman**
Abdessamad KOBİ – Professor at ISTIA, Angers University, France – **Co-Chairman**
Bruno-Marie BECHARD – Professor at University of Sherbrooke, Canada
Allan BROWN – Professor at University of Perth, Australia
Remy GAUTIER – Professor at ENSAM, Paris, France
Fabrice GUERIN – Professor at University of Angers, France
Amilcar GONCALVEZ – Professor at University of Lisabona, Portugal
Socrates KAPLANIS – Professor at University of Patras, Greece
Liviu MASALAR – Professor at University of Liege, Belgium
Mihai POPESCU – Professor at “Politehnica” University of Bucharest, Romania
Ajit K. VERMA – Professor at Indian Institute of Technology of Bombay, India
Ton van der WIELE – Professor at Erasmus University of Rotterdam, Netherlands
Enrico ZIO – Professor Politehnica University of Milano, Italy

SECRETARIAT:

Lorena CHIRITA
Marius RAMARU
Marga ZAHARIA

CCF 2010 AGENDA

WEDNESDAY, 22 September 2010

9⁰⁰ – 09³⁰ **PLENARY OPENING SESSION**
Opening of the 2010 International Conference CCF

9³⁰ – 11⁰⁰ **PLENARY SESSION I**

11⁰⁰ – 11³⁰ **Coffee Break**

11³⁰ – 13⁵⁰ **PLENARY SESSION II**

13⁵⁰ – 14⁰⁰ **Poster Session**

THURSDAY, 23 September 2010

9⁰⁰ – 10⁴⁰ **PLENARY SESSION III : Quality Assurance in Education**

10⁴⁰ – 11⁰⁰ **Coffee Break**

11⁰⁰ – 12³⁰ **PLENARY SESSION IV**

12³⁰ - 14⁰⁰ **Special Session**
*In Honor of Prof. Emeritus Alessandro Birolini
at his 70th anniversary*

10⁰⁰ – 14⁰⁰ **Special Session : CE mark and window quality in Romania**

FRIDAY, 24 September 2010

9⁰⁰ – 11⁰⁰ PLENARY SESSION V

11⁰⁰ – 11³⁰ Coffee Break

11³⁰ – 13⁵⁰ PLENARY SESSION VI

13⁵⁰ - 14⁰⁰ Discussions

14⁰⁰ CLOSING THE CCF 2010 DEBATES

Wednesday, 22 September 2010, 9⁰⁰

PLENARY OPENING SESSION

Chairman: Dan STOICHITOIU – President of The Romanian Society for Quality Assurance, General Chairman of CCF2010

**9⁰⁰-9³⁰ Opening the debates of the Conference CCF 2010
Welcoming and greetings**

Wednesday, 22 September 2010, 9³⁰

PLENARY SESSION I

**Chairmen: Liviu MASALAR – University of Liège, Belgium
Alex STAMATIU – UTCB Bucharest**

**9³⁰-10⁰⁰ Risk Management by an Appropriate Selection of Safety Devices in Machine Control Systems
Liviu MASALAR – University of Liège, Belgium**

**10⁰⁰-10³⁰ Certification of Media Systems – An Innovative Approach
Ioan C. BACIVAROV – “Politehnica” University Bucharest**

**10³⁰-11⁰⁰ A New Theory of Reliability
Alexandru STAMATIU, Eugen BADEA, Bogdan NAN, Gheorghe PALTINEANU – Construction University Bucharest**

11⁰⁰ -11³⁰ Coffee Break

PLENARY SESSION II

**Chairmen: Ioan C. BACIVAROV – “Politehnica” University, Bucharest
Abdessamad KOBI – University of Angers, France**

**11³⁰-11⁵⁰ Evaluation of Lean Approaches in UK National Health Trusts
Michele CANO, Athanassios KOUROUKLIS, Siobhan DRUMMOND - University of The West of Scotland, Paisley, Great Britain.**

11⁵⁰-12¹⁰ Evaluation des risques d'un système par approche Bayésienne : Application aux passages à niveau
A. BOUCHIBA, A. CHERKAOUI - École d'Ingénieurs Rabat, Maroc
M. BARREAU, A. KOBİ - LASQUO-ISTIA, Univ. Angers, France

12¹⁰ - 12³⁰ Decisional Transparency – the Basic Element to increase the Efficiency of Public Services provided to the Community
Tudor PENDIUĆ, Maria ROTARU – PITESTI City Hall

12³⁰ - 12⁵⁰ Services Quality Management in IT Organizations
Bianca PRISECARU, Doina CONSTANTINESCU
– “Politehnica” University, Bucharest

12⁵⁰ - 13¹⁰ TQM and necessary changes in the organization that implements such system
Daniel Valentin NICOLESCU, Doina CONSTANTINESCU –
“Politehnica” University, Bucharest

13¹⁰ - 13³⁰ Challenges and Threats for Public Institutions in Excellence Concepts Implementation
Irina SEVERIN, Mihai CARAMIHAİ – “Politehnica” University, Bucharest

13³⁰-13⁵⁰ Organization’s Management and corporate social responsibility
Victor ANDREI – CCA TehnoREX S.R.L., Bucharest

13⁵⁰-14⁰⁰ POSTER SESSION

Chairman: Ioan C. BACIVAROV – „Politehnica” University Bucharest

1. Multicriteria Approach to Assessment Risk Professionals in the Industry of Gas Treatment

Dorra AYADI - Faculté des sciences économiques(FSE) Sfax - Tunisia
Abdessamad KOBİ, Christian ROBLEDO - LASQUO/ISTIA Angers, France
Habib CHABCHOUB – Inst. Supérieur de Gestion Industrielle Sfax - Tunisia
Lotfi AZZABI, Younes BOUJELBENNE – FSE Sfax - Tunisia

2. Total Quality Management and Reorganization of Large Companies
Alan BROWN - Edith Cowan University, Churchlands, Australia
Ton van der WIELE - Erasmus University, Rotterdam, The Netherlands

3. The Virtual Machines Survivability
Ioan-Cosmin MIHAİ – Police Academy, Bucharest
Ioan C. BACIVAROV – “Politehnica” University, Bucharest

4. Reliability and Safety Issues of Telepresence and Teleoperated Robots
Virgil L.M. ILIAN, Ioan C. BACIVAROV- EUROQUALROM-ETTI, “Politehnica” University, Bucharest

5. Building a Decisional Model in a Complex Socio-Technical System
Angelica BACIVAROV - “Politehnica” University, Bucharest
Costel CIUCHI - Secretariat General of the Government, Bucharest
Gabriel PETRICA, “Politehnica” University, Bucharest

6. Application of Taguchi Method in Optimization of A Technological Process Parameters
Suraj S. RANE - Padre Conceicao College of Engineering, Goa, India
A. SRIVIDYA, AK.VERMA - Indian Institute of Technology Bombay, Mumbai, India

7. On Degradation of Interconnects in Multi-Chip Modules
Michel IGNAT - CNRS, INP Grenoble, LTPCM, France

8. Reliability Analysis of Highly Reliable Elements
D. VALIS, Z. VINTR - University of Defence, Brno, Czech Republic
M. KOUCKY - Technical University of Liberec, Liberec, Czech Republic

9. Resilience Analysis on Lifetime Based Node Failure for Peer-to-Peer Networks
Dorina Luminita COPACI - Bucharest Courthouse
Constantin A. COPACI - ANCOM, Bucharest

Note: Poster paper works will be introduced by short presentations of the authors /chairman

Thursday, 23 September 2010, 9⁰⁰

PLENARY SESSION III: Quality Assurance in Education

Chairmen: Nicolae DRAGULANESCU – “Politehnica”
University, Bucharest
Ion HOHAN – President of FIATEST

9⁰⁰ – 9²⁰ **Quality assurance in education – from the European project to the Romanian outcome**

Nicolae DRAGULANESCU – “Politehnica” University,
Bucharest
Remus CHINA – Ministry of Education, Research, Youth and
Sport

9²⁰–9⁴⁰ **“Achievements and Prospects of SMC design for continuous professional training system in Romania within the European Framework for Quality Assurance application in education and professional training.”**

Ion HOHAN – President of FIATEST

9⁴⁰ – 10⁰⁰ **Internal Evaluation - a Process Essential in developing a School to a Referential Optimal or Adoption of a Model of Excellence**

Remus CHINA – Ministry of Education, Research, Youth and
Sport

10⁰⁰ -10²⁰ **Quality Standards for Students Placement – Q-PlaNet Approach**

Doru TALABA, Laura Teodora DAVID – Transylvania
University, Brasov

10²⁰-10⁴⁰ **Obstacles and Delays Reluctances within the Romanian Schools Development according to widely recognized Benchmarks and Excellence Models**

Manuela STOICA – National Agency for Quality Assurance in
pre-university Education

10⁴⁰ – 11⁰⁰ - **Coffee Break**

PLENARY SESSION IV

Chairmen: Eugen NEACSU – SRAC CERT, Bucharest
Steluta NISIPEANU – SRAC CERT, Bucharest

11⁰⁰-11²⁰ **Risk Management, Integrated Part of a Performant Management**
Steluta NISIPEANU, Maria HAIDUCU – INCDPM, Bucharest

11²⁰ - 11⁴⁰ **Standardization, Conformity Assessment and Testing – Tools to Ensure the Requirement for Safe Operation of Equipments**
Ionel IORGA, Anca Antonov, Octavian IORGA – INCDPM, Bucharest

11⁴⁰ - 12⁰⁰ **A Solution for the Validation of Medical Processes**
Eugen NEACSU – Director of S.C. Q-INSPECT S.R.L.
Dragos VINERANU – Director of the University Hospital for
Emergency from Bucharest

12⁰⁰ - 12³⁰ **The impact of Romania’s Water Industry on the Weather Changes**
Daniela Simona Moldovan – Compania Apa Brasov

Special Session

In Honor of Prof. Emeritus Alessandro Birolini at his 70th anniversary

Chairmen: Dan STOICHITOIU – General Chairman CCF 2010
Ioan C. BACIVAROV – Chairman Scientific
Committee CCF 2010

12³⁰– 12⁴⁵ **Prof. Alessandro BIROLINI – An European Guru of Reliability**
Ioan C. BACIVAROV – Editor for Europe „Quality Engineering”
(U.S.A.)

12⁴⁵ – 13³⁰ **Approximate Expressions for the Reliability and Availability of Repairable Large Systems**
Professor Emeritus Alessandro BIROLINI – ETH Zurich (Elvetia)

13³⁰ – 14⁰⁰ The release - world premier of the 6th edition of the remarkable book of Professor Birolini **“Reliability Engineering: Theory and Practice”** (Springer, September 2010), work considered by experts in the field a real “Bible” of reliability.

Presenting: *Dan STOICHITOIU*
Ioan C. BACIVAROV
Alessandro BIROLINI

test desks areas for traction electric equipments
Irina TIHAN - ICPE SAERP S.A., Bucharest

Special Session: CE mark and window quality in Romania

Chairmen: *Ulrich SIEBERATH* – Director ift ROSENHEIM
Cristian Paul STAMATIADÉ – Director Ministry of
Regional Development and Tourism
Alex STOICHITOIU – Executive Director SRAC CERT

**10⁰⁰ - 10³⁰ The significance of conformity mark CE and quality mark
ift Zertifiziert**
David HEPP –ift ROSENHEIM

**10³⁰ – 10⁴⁰ SRAC CERT – ift-ROSENHEIM Partnership;
Testing Laboratory**
Alex STOICHITOIU – Executive Director SRAC CERT

**10⁴⁰ – 11⁰⁰ Cascade application criteria of ITT results established by
the system provider**
Georgeta NEAGU – SRAC CERT, Bucharest

11⁰⁰ - 14⁰⁰ Discussions, questions

FRIDAY, 24 September 2010, 9⁰⁰

PLENARY SESSION V

Chairmen: *Michele CANO* – West Scotland University, U.K.
Romeo DENUNTZIO – SRAC CERT, Bucharest

**9⁰⁰ – 9²⁰ PAS 99:2006 – Instrument for implementing the
management systems into the general business
management**
M.S. IGNATOV – “Politehnica” University, Bucharest
Petru FUNAR – “Politehnica” University, Bucharest

9²⁰ – 9⁴⁰ Processes innovation project for test processes in the

**9⁴⁰ – 10⁰⁰ Motivational Aspects of South Korean Quality Management
approach**
Nicolae DRAGULANESCU – “Politehnica” University, Bucharest

**10⁰⁰ - 10²⁰ Preparing the internal audit program by processes of the social
accountability-health and safety integrated management system
according to the requirements of SA8000:2008, BS OHSAS
18001:2007 and ISO 19011:2002 standards**
Romeo DENUNTZIO – SRAC CERT, Bucharest

**10²⁰ - 10⁴⁰ Efficient evaluation of quality management system by optimum
organization processes in the automotive industry in
compliance with ISO/TS 16949:2009**
Emilian LONCEA, Elena LONCEA – SRAC CERT, Bucharest

**10⁴⁰-11⁰⁰ “Lean Manufacturing” Concepts and Methods to continuously
improve the Processes in the Automotive Industry**
Elena LONCEA – SRAC CERT, Bucharest

11⁰⁰ – 11³⁰ Coffee Break

PLENARY SESSION VI

Chairmen: *Angelica BACIVAROV* – “Politehnica” University,
Bucharest
Marius BAZU – IMT Bucharest

**11³⁰ – 11⁵⁰ Researches Concerning the Dependability of Socio-Technical
Systems**
Angelica BACIVAROV – “Politehnica” University Bucharest
Ioan. C. BACIVAROV – “Politehnica” University Bucharest

11⁵⁰ – 12¹⁰ Reliability Testing of Electronic Components: State-of-the-Art

and New Trends

Marius BAZU, Virgil ILIAN, Lucian GALATEANU – National Institute for Research and Development in Microtechnologies, Bucharest

12¹⁰ – 12³⁰ Typical Failure Mechanisms of Microsystem Technology
Marius BAZU, Lucian GALATEANU, Virgil ILIAN – IMT Bucharest

12³⁰ - 12⁵⁰ Solar Cells Reliability Testing Programs
Virgil ILIAN – UPB; Elena MANEA, Marius BAZU, Lucian GALATEANU – IMT Bucharest

12⁵⁰ - 13¹⁰ E-learning Systems Security
*Ioan-Cosmin MIHAI – Police Academy,
Ioan C. BACIVAROV – “Politehnica” University, Bucharest*

13¹⁰ - 13³⁰ Methods to Ensure Resilience In Communication Networks and P2P Overlay
Luminița COPACI – Bucharest Court House, Alin COPACI - ANRCTI, Angelica BACIVAROV - „Politehnica” University, Bucharest

13³⁰ - 13⁵⁰ Implementation of the Integrated Management Systems (SMI)
*Lidia NICULITA– Technical University of Civil Engineering
Petru COST - State Inspectorate for Constructions*

13⁵⁰ - 14⁰⁰ DISCUSSIONS

14⁰⁰ CLOSING THE CCF 2010 DEBATES