

**MINISTRY OF EDUCATION, RESEARCH, YOUTH AND SPORT
NATIONAL AUTHORITY FOR SCIENTIFIC RESEARCH**

***NATIONAL R&D INSTITUTE FOR CRYOGENICS AND ISOTOPIC
TECHNOLOGIES - ICIT RM. VALCEA***

**The 16-th Conference
“Progress in Cryogenics and Isotopes Separation”**

P R O G R A M

***13-15 OCTOBER, 2010
CALIMANESTI - CACIULATA, VALCEA
R O M A N I A***

**MINISTRY OF EDUCATION, RESEARCH, YOUTH AND SPORT
NATIONAL AUTHORITY FOR SCIENTIFIC RESEARCH**

***NATIONAL R&D INSTITUTE FOR CRYOGENICS AND ISOTOPIC
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PROGRAM OF THE 16th CONFERENCE

“Progress in Cryogenics and Isotopes Separation”

CALIMANESTI - CACIULATA, VALCEA, OCTOBER 13-15, 2010

Wednesday October 13, 2010		Thursday October 14, 2010		Friday October 15, 2010	
8 ³⁰ -10 ⁰⁰	REGISTRATION	8 ³⁰ -9 ⁰⁰	Poster Papers	9 ⁰⁰ -11 ⁰⁰	Oral Papers
10 ⁰⁰ -10 ³⁰	Conference Opening	9 ⁰⁰ -11 ⁰⁰	Oral Papers	11 ⁰⁰ -11 ³⁰	Coffee Break
10 ³⁰ -12 ⁰⁰	Lectures	11 ⁰⁰ -11 ³⁰	Coffee Break	11 ³⁰ -13 ³⁰	Oral Papers
12 ⁰⁰ -12 ³⁰	Coffee Break	11 ³⁰ -14 ⁰⁰	Oral Papers	13 ³⁰ -14 ³⁰	Lunch (Buffet)
12 ³⁰ -14 ⁰⁰	Lectures	14 ⁰⁰ -15 ³⁰	Lunch (Buffet)	14 ³⁰	Conference Closure
14 ⁰⁰ -15 ³⁰	Lunch (Buffet)	16 ⁰⁰ -19 ⁰⁰	Visit of the “Anton Pann” Theatre from Rm. Valcea and Theatre performance		
15 ³⁰ -16 ⁰⁰	Poster Papers	20 ⁰⁰ -24 ⁰⁰	Festive Dinner		
16 ⁰⁰ -18 ⁰⁰	Lectures				
18 ⁰⁰ -18 ³⁰	Coffee Break				
18 ³⁰ -19 ³⁰	Oral Papers				
20 ⁰⁰ -23 ⁰⁰	Welcome Cocktail				

Organizing Committee

THE 16th CONFERENCE
“PROGRESS IN CRYOGENICS AND ISOTOPES SEPARATION”
OCTOBER 13-15, 2010 – CALIMANESTI-CACIULATA, ROMANIA

• **SCIENTIFIC COMMITTEE**

Acad. Marius Peculea Academia România	Prof dr. Konstantin Petrov Institutul de Electrochimie, Sofia, Bulgaria
Dr. Florin Buzatu IFA București Măgurele	Prof dr. Angelo Moreno ENEA, Italia
Prof. dr. Gheorghe Barbu Universitatea din Pitești	Prof dr. Ashok Vaseashta Universitatea Marshall, Huntington, SUA
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Dr. Vasile Stanciu
Dr. Roxana Elena Ionete
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Dr. Sebastian Brad
Dr. Gheorghe Titescu
Eng. Constantin Ciortea
Dr. Mihai Culcer
Eng. Mihai Anghel
Eng. Dan Mocanu
Eng. Iulia Stefan
Eng. Marian Vacaru

Organizing Committee

**The 16-th Conference
“Progress in Cryogenics and Isotopes Separation”**

**PROGRAM
of the Plenary Lectures**

Hotel "COZIA" Hall

October 13, 2010

Chairman: Damian Axente
Co-chairman: Roxana Ionete
Presentation time: 30 min.

10³⁰ - 12⁰⁰

1. DESIGN AND R&D ACTIVITIES UNDER DEVELOPMENT IN TRIPLA-CA CONSORTIUM IN SUPPORT OF ITER TRITIUM PLANT CONSTRUCTION

Ion CRISTESCU

Karlsruhe Institute of Technology, Germany

2. RESERVED TITLE

Liviu STEFAN

National R&D Institute for Cryogenics and Isotopic Technologies – ICIT Rm. Valcea, Romania

**3. THE PRIMARY ROMANIAN RADON STANDARD, A COMMON PROJECT: IFIN-HH, BUCHAREST; ICSI, RM. VALCEA; ISP, TIMISOARA; CEA / LNE-LNHB, SACLAY (FRANCE)
Maria SAHAGIA¹, Luca AURELIAN¹, Anamaria Cristina WÄTJEN¹, Andrei ANTOHE¹, Constantin IVAN¹, Doru STANGA¹, Carmen VARLAM², Ionut FAURESCU², Laszlo TORO³, Mihaela NODIT³, Philippe CASSETTE⁴**

¹ „Horia Hulubei” National Institute of R&D for Physics and Nuclear Engineering, IFIN-HH, Bucharest;

² National Research and Development Institute for Cryogenics and Isotopic Technologies – ICIT Rm Valcea;

³Institute of Public Health, Regional Centre Timisoara, ISPT, Romania; ⁴CEA/LNE-LNHB Laboratoire National Henri Becquerel – CEA Saclay, France

12⁰⁰ - 12³⁰ Coffee Break

12³⁰ - 14⁰⁰

4. CASCADE FOR ¹⁵N SEPARATION BY ISOTOPE EXCHANGE IN NO, NO₂ - HNO₃ SYSTEM UNDER PRESSURE

Damian AXENTE

National Institute for Research and Development of Isotopic and Molecular Technologies, Cluj-Napoca

5. ROMANIAN RESEARCHES PREPARING THE NEW ERA ENERGY CHALLENGES – A PHYSICIST POINT OF VIEW

Mihai VARLAM

National Research and Development Institute for Cryogenics and Isotopic Technologies – ICIT Rm Valcea

6. INFLUENCE OF Mn SUBSTITUTION WITH Fe/Co ON MAGNETIC STRUCTURE AND TRANSPORT MECHANISMS IN SOME MANGANITES

Mihail-Liviu CRAUS^{1,2}, Valeryi SIMKIN², Nicoleta CORNEI³ and Viorel DOBREA¹

¹National Institute of Research and Development for Technical Physics, Iasi, Romania; ²Joint Institute for Nuclear Research, Dubna, 141980, Russia; ³"Al.I.Cuza" University, Chemistry Department, Iasi, Romania

14⁰⁰ – 15³⁰ Lunch (Buffet)

16⁰⁰ - 18⁰⁰

Chairman: Liviu Ștefan
Co-chairman: Carmen Varlam
Presentation time: 30 min.

7. THE NATIONAL CENTER FOR HYDROGEN AND FUEL CELLS JUMPSTARTING THE HYDROGEN ECONOMY THROUGH RESEARCH

Ioan ȘTEFĂNESCU, Mihai VARLAM, Elena CARCADEA

National Research and Development Institute for Cryogenics and Isotopic Technologies – ICIT Rm Valcea, Romania

8. MANAGEMENT OF MARKETING IN HIGHER EDUCATION. CASE STUDY: “CONSTANTIN BRANCUSI” UNIVERSITY OF TARGU JIU

Adrian GORUN, Luminița Georgeta POPESCU

“Constantin Brâncuși” University of Târgu Jiu, Romania

9. FUNDING OPPORTUNITIES THROUGH PRIORITY AXIS 2 "COMPETITIVENESS THROUGH RESEARCH, TECHNOLOGICAL DEVELOPMENT AND INNOVATION OPERATIONAL PROGRAMME INCREASE OF ECONOMIC COMPETITIVENESS"

Augustin CORNEANU

National Authority for Scientific Research, General Direction - Intermediary Body for Research

ORAL PAPERS

Presentation time: 20 min.

10. NUCLEAR POWER GENERATION ALTERNATIVE FOR A CLEAN ENERGY FUTURE

Elena BOBRIC, Cristina BUCUR, Ion POPESCU, Vasile SIMIONOV

Health Physics Department, Cernavoda NPP – Romania

11. REFRACTORY ALLOYS-CHALLENGE FOR FAST NUCLEAR REACTORS AND ACCELERATED DRIVEN SYSTEMS

Dumitru OHAI

Institute for Nuclear Research, Mioveni, Romania

12. TRITIUM LEVEL ALONG ROMANIAN DANUBE RIVER SECTOR

Carmen VARLAM, Ioan ȘTEFĂNESCU, Irina POPESCU, Ionuț FAURESCU, Denisa DOBRINESCU

National Research and Development Institute for Cryogenic and Isotopic Technologies-ICIT Rm. Valcea, Romania

18⁰⁰ - 18³⁰ Coffee Break

18³⁰ - 19³⁰

13. INTEGRATED SYSTEM FOR TESTING, INVESTIGATION AND ANALYZING OF NUCLEAR MATERIALS, TIAMAT-N

Maria ROTH, Vasile PIȚIGOI, Viorel IONESCU, Mihai CONSTANTIN, Octavian BĂBUȘI
Institute for Nuclear Research, Mioveni, Romania

14. THE LIFE CYCLE AND YIELDING ON *Lycopersicon esculentum* L. (Mill) PRETREATED WITH DEUTERIUM DEPLETED WATER AND NANO MAGNETIC PARTICLES

Gallia BUTNARU¹, Gh. TITESCU², Horia BUTNARIU¹, I. STEFANESCU²

¹*Banat University of Agricultural Sciences and Veterinary Medicine, Timisoara Romania;* ²*National Research-Development Institute for Isotopic and Cryogen Technologies-ICIT Ramnicu Valcea, Romania*

15. ADVANCED SIMULATION STRATEGIES OF DYNAMIC REGIMES FROM NUCLEAR PLANTS IN ORDER TO INCREASE OF NUCLEAR SAFETY

Iulian Pavel NIȚĂ

C.I.T.O.N. București - Măgurele, Romania

16. EURO-RIs-Net PROJECT AND THE RESEARCH INFRASTRUCTURES

Radu TAMAIAN

National Research and Development Institute for Cryogenics and Isotopic Technologies – ICIT Rm Valcea

20⁰⁰ - 23⁰⁰ – Welcome Cocktail

Organizing Committee

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**PROGRAM
of the Poster Session**

Hotel "COZIA" Hall

October 13, 2010

STABLE ISOTOPES PHYSICS, TECHNOLOGIES AND APPLICATIONS

**P.1. SIMULATION PROGRAMS USED ON EXPERIMENTAL DETERMINATION OF THE
STRUCTURED PACKING EFFICIENCY**

Cornelia CROITORU, Floarea POP

*National Research and Development Institute of Cryogenics and Isotopic Technologies – ICSI Rm. Valcea,
Romania*

CRYOGENICS TECHNOLOGIES AND EQUIPMENTS

**P.2 ANALYSIS OF CHILLER UNITS CAPACITY FOR DIFFERENT HEAT LOADS
CONSIDERING VARIATION OF AMBIENT AIR TEMPERATURE AND COOLING WATER**

Aurelia Camelia COMAN, Mircea ŢENESCU

RAAN-Subsidiary of Technology and Engineering for Nuclear Projects, Magurele, Ilfov, Romania

P.3 USE OF NITROGEN FOR TRITIUM SEPARATION PLANT SECURITY

Sorin GHERGHINESCU

*National Research and Development Institute for Cryogenics and Isotopic Technologies – ICIT Rm. Valcea
Romania*

SCIENCE AND MATERIALS ENGINEERING

P.4. NEW TRENDS IN FORMULATING TOOTHPASTE

C. CERNATESCU*, CT. FILIPOVICI, A. MOCANU***

**Technical University „Gh.Asachi” Iasi, Faculty of Chemical Engineering and Environmental Protection,
Dep. Organic and Biochemical Engineering, Iași, România*

**P.5. THE REDUCING EMISSIONS OF GASES WITH GREENHOUSE EFFECT USING THE
METALLIC CATALYSTS SUPPORTED. PRODUCTION TECHNOLOGY, PREPARATION,
PHYSICAL AND CHEMICAL CHARACTERIZATION**

Marius CONSTANTINESCU, Felicia BUCURA

*National Research and Development Institute for Cryogenics and Isotopic Technologies - ICIT Rm. Valcea,
Romania*

P.6. FTIR AND EPR SPECTROSCOPIC CHARACTERISATION OF IRON-TELLURITE GLASSES OBTAINED BY THE SOL-GEL METHOD

Adriana DEHELEAN¹, Simona RADA², Adriana POPA¹, Virginia DANCIU³, Eugen CULEA²

¹National Institute for Research and Development of Isotopic and Molecular Technologies, Cluj-Napoca, Romania; ²Department of Physics, Technical University of Cluj-Napoca, 400020, Cluj-Napoca, Romania

³Faculty of Chemistry and Chemical Engineering, Babes-Bolyai University, Cluj-Napoca, Romania

P.7. SOME CONSIDERATIONS REFERRING TO MECHANISMS OF IRON OXIDES DISSOLUTION

M. RADULESCU, D. STEFANESCU, L. POPA, S. MOGOSAN

Institute for Nuclear Research, POBox78 Pitesti – Mioveni 115400, Romania

NUCLEAR POWER – FISSION AND FUSION

P.8. AUTOMATIC CONTROL SYSTEM OF STORED TRITIUM

Eusebiu Ilarian IONETE¹, Bogdan MONEA¹, Dumitru BENCHEA²

¹National Research and Development Institute for Cryogenics and Isotopic Technologies – ICIT Rm. Valcea Romania; ²CNE Cernavoda, Romania

P.9. ICIT CONTRIBUTION TO JET GAMMA-RAY DIAGNOSTICS ENHANCEMENT

S. SOARE¹, M. CURUIA¹, V. ZOITA², V. BRAIC³, T. CRACIUNESCU², G. GROS⁴, V. KIPTILY⁵, L. RIOS⁶, M. ANGHEL¹, P. BLANCHARD⁷, M. BRAIC³, T. EDLINGTON⁵, A. MURARI⁸, P. PRIOR⁵, S. SANDERS⁵, B. SYME⁵, N. BALSHAW⁵, D. CROFT⁵, I. TISEANU² AND JET EFDA CONTRIBUTORS*

*JET-EFDA Culham Science Centre, Abingdon, UK; ¹Association EURATOM-MEdC, National Institute for Cryogenics and Isotopic Technologies, Rm. Valcea, Romania; ²Association EURATOM-MEdC, National Institute for Laser, Plasma and Radiation Physics, Bucharest, Romania; ³Association EURATOM-MEdC, National Institute for Optoelectronics, Bucharest, Romania; ⁴Association EURATOM-CEA, DRFC, Cadarache, France; ⁵Association EURATOM-UKAEA/JOC, Culham Science Centre, Abingdon, UK; ⁶Association EURATOM-CIEMAT, Madrid, Spain; ⁷JET-CSU, Culham Science Centre, Abingdon, UK; ⁸Association EURATOM-ENEA, RFX, Padova, Italy; *See Appendix of F. Romanelli et al. Proceedings of 22nd IAEA Fusion Energy Conference, Geneva, Switzerland*

P.10. THE PREDICTION OF TRITIUM LEVEL REDUCTION OF NPP CERNAVODA USING CTRF

Anisia BORNEA, Marius ZAMFIRACHE, Liviu STEFAN, Ioan STEFANESCU

National Research and Development Institute for Cryogenics and Isotopic Technologies – ICIT Rm. Valcea Romania

P.11 NEUTRON ENERGY DISTRIBUTION MEASUREMENTS ON THE JET TOKAMAK BY MEANS OF BUBBLE DETECTOR SPECTROMETERS

M. GHERENDI¹, T. CRACIUNESCU¹, T. EDLINGTON², V. KIPTILY², A. MURARI³, A. PANTEA¹, S. POPOVICHEV², V. ZOITA¹, and JET-EFDA contributors*

JET-EFDA, Culham Science Centre, Abingdon, OX14 3DB, UK; ¹Association EURATOM-MEdC, National Institute for Laser, Plasma and Radiation Physics, Magurele-Bucharest, Romania; ²Association EURATOM-UKAEA, Culham Science Centre, Abingdon, UK; ³Association EURATOM-ENEA, RFX, Padova, Italy

* See Appendix of F. Romanelli et al., Proc. 22nd IAEA Fusion Energy Conference, Geneva, Switzerland, 2008

HYDROGEN AND FUEL CELLS

P.12. DEVELOPMENT OF SMR MEMBRANE REACTOR FOR HYDROGEN PRODUCTION TO ICIT - RM. VALCEA

Ioan IORDACHE, Mircea RACEANU, Marian CURUIA, Dumitru MIRICA

National Research and Development Institute for Cryogenics and Isotopic Technologies – ICIT Rm. Valcea Romania

P.13. EFFECT OF BASE ADDITIVES ON PROPYLENE GLYCOL OBTAINING OVER NICKEL CATALYSTS

Ioan IORDACHE¹, Adriana MARINOIU², Mihaela IORDACHE³, Claudia COBZARU⁴

¹National Research and Development Institute for Cryogenics and Isotopic Technologies – ICIT Rm. Valcea Romania; ²S.C. OLTCHIM S.A.- Research Center, Rm. Valcea, Romania; ³The National Research & Development Institute for Industrial Ecology – ECOIND, Rm. Valcea, Romania; ⁴Faculty of Industrial Chemistry, Technical University of Iasi, Romania

P.14. MULTIVARIABLE CONTROL SYSTEM FOR DYNAMIC PEM FUEL CELL MODEL

Vasile TANISLAV, Elena CARCADEA, Catalin CAPRIS, Mihai CULCER, Mircea RACEANU

National Research and Development Institute for Cryogenics and Isotopic Technologies – ICIT Rm. Valcea, National Research Centre for Hydrogen and Fuel Cells, Rm. Vâlcea, Romania

P.15. MONITORING AND CONTROL OF A HYBRID ENERGY SYSTEM

M. RACEANU, M. CULCER, L. PATULARU, A. ENACHE, M. BALAN, M. VARLAM

National Research and Development Institute for Cryogenics and Isotopic Technologies – ICIT Rm. Valcea, National Research Centre for Hydrogen and Fuel Cells, Rm. Vâlcea, Romania

P.16. ICSI RM. VALCEA PROJECTS IN COLLABORATION WITH PARTNERS FROM SOUTH KOREA

Ioan IORDACHE¹, Jeehyeong KHIM², Jong Soo CHO³, Mihaela IORDACHE⁴

¹National Research and Development Institute for Cryogenics and Isotopic Technologies – ICIT Rm Valcea Romania; ²Korea University, Seoul, Korea; ³Catholic University of Korea, Seoul, Korea; ⁴INCD-ECOIND, Rm. Valcea, Romania

ENVIRONMENTAL AND LIFE QUALITY

P.17. FUEL GAS FROM BIOMASS WASTES GASIFICATION IN A FREE-FALL REACTOR

E. DAVID¹, S. PREDA², C. DUCU³

¹National Research and Development Institute for Cryogenics & Isotope Technologies - ICIT Rm.Vâlcea, Romania; ²Research Station for Fruit Growing Valcea, Rm.Valcea, Romania; ³University of Pitesti-Research Centre for Advanced Materials, Pitesti, Romania

P.18. ASSESSMENT OF HUMAN IMPACT ON THE ENVIRONMENT THROUGH INVESTIGATIONS ON POLLUTION OF AIR, WATER, SOIL

Gili SAROS, Andreea Maria IORDACHE, Irina GEANA, Raluca VREMERA, Diana FLORESCU

National Research and Development Institute for Cryogenics and Isotopic Technologies – ICIT Rm. Valcea Romania

P.19. USING CLELAND'S REAGENT FOR ASSESSING THE PRO-OXIDANT ACTIVITY OF PARTICULATE MATTER PM10 AND PM2.5

Monica MATEESCU¹, Liana Simona SBIRNA¹, Anisoara PREDA², Sebastian SBIRNA³

¹University of Craiova, Faculty of Chemistry, Craiova; ²National Research and Development Institute for Cryogenic and Isotopic Technologies-ICIT Rm. Valcea, Romania; ³Dolj Environment Protection Agency, Craiova, Romania

LABORATORY ANALYSIS METHODS

P.20. SOME ASPECTS RELATED TO THE HIGH PERFORMANCE IN GAMMA SPECTROMETRY

Gheorghe VIERU, Ramona MIHAIU, Viorica NISTOR

Institute for Nuclear Research, PO Box 78, Pitesti, Romania

P.21. RAMAN, SERS AND DFT INVESTIGATIONS OF SOME METAL-CHELATING COMPOUNDS

L. SZABÓ¹, N. LEOPOLD¹, L. F. LEOPOLD², V. CHIȘ¹, I. B. COZAR¹, O. COZAR¹

¹Faculty of Physics, Babeș-Bolyai University, Cluj-Napoca, Romania; ²Department of Chemistry and Biochemistry, University of Agricultural Sciences and Veterinary Medicine, Cluj-Napoca, Romania

AGRICULTURE AND FOOD SAFETY

P.22. IDENTIFICATION OF RED GRAPE VARIETIES BY DEFINING THE WINE ANTHOCYANIN PROFILE

Elisabeta-Irina GEANA, Andreea-Maria IORDACHE, Roxana-Elena IONETE

National Research and Development Institute for Cryogenics and Isotopic Technologies – ICIT Rm Valcea Romania

P.23. THE OPTIMIZATION OF THE METHOD FOR METALS CONTENT DETERMINATION IN ROMANIAN WINES BY ICP-MS AFTER MICROWAVE MINERALIZATION

Andreea IORDACHE¹, Irina GEANA¹, Roxana IONETE¹, Monica CULEA²

¹National Research and Development Institute of Cryogenics and Isotopic Technologies – ICIT Rm. Valcea, Romania; ²“Babes-Bolyai” University, Cluj-Napoca, Romania

P.24. THE PRELIMINARY STUDIES OF SOME ROMANIAN SINGLE STRENGTH JUICE

Adriana DEHELEAN, Cezara VOICA, Alina MAGDAS, Romulus PUSCAS

National Institute for Research and Development of Isotopic and Molecular Technologies, Cluj-Napoca, Romania

P.25. PRELIMINARY STUDY OF TRACEABILITY ON THE SOIL-PLANT-GRAPE CHAIN

D.A. MAGDAS, S. M. CUNA

National Institute for Research and Development of Isotopic and Molecular Technologies, Cluj-Napoca, Romania

P.26. MONITORING OF ENVIRONMENTAL QUALITY PARAMETERS FROM A SLAUGHTERHOUSE IN RM.VALCEA AREA

Marius ARICIU¹, Diana FLORESCU², Elena MITRANESCU³

¹S.C. DIANA S.R.L Rm. Valcea; ²National Research and Development Institute for Cryogenics and Isotopic Technologies – ICIT Rm. Valcea, Romania; ³University of Agronomic Science and Veterinary Medicine, Veterinary Medicine Faculty, București, Romania

The papers programated on Wednesday, October 13, 2010, will be placed on panels Wednesday from 8⁰⁰-9⁰⁰ a.m. and removed Wednesday after 18⁰⁰ p.m. or Thursday in the morning.

Organizing Committee

**The 16-th Conference
„Progress in Cryogenics and Isotopes Separation”**

**PROGRAM
of the Oral Session / Papers**

Hotel "COZIA" Hall

October 14, 2010

Chairman: Maria Roth
Co-chairman: Mihai Culcer
Presentation time: 20 min.

9⁰⁰ - 11⁰⁰

1. Mn SUBSTITUTION EFFECT ON THE STRUCTURAL AND MAGNETIC PROPERTIES IN THE $\text{La}_{0.54}\text{Ho}_{0.11}\text{Sr}_{0.35}\text{Mn}_{1-x}\text{V}_x\text{O}_3$ MANGANITES

Mihail-Liviu CRAUS^{1,2}, N. CORNEI³, V. SIMKIN² and V. DOBREA¹

¹National Institute of Research and Development for Technical Physics, Romania; ²Joint Institute for Nuclear Research, Dubna, Russia; ³„Al.I.Cuza” University, Faculty of Chemistry, Iasi, Romania

2. PUBLIC DOSES DUE TO TRITIUM EMISSIONS FROM CERNAVODA NPP

Elena BOBRIC, Cristina BUCUR, Ion POPESCU, Vasile SIMIONOV

Health Physics Department, Cernavoda NPP – România

3. CALIBRATION OF A GSD 320 QUADRUPOLE MASS SPECTROMETER FOR HYDROGEN AND DEUTERIUM GAS MIXTURES ANALYSIS

Alina STEFANESCU¹, Nicolae BIDICA¹, Anisia BORNEA¹, Ion CRISTESCU², Ioan STEFANESCU¹

¹National Research and Development Institute for Cryogenics and Isotopic Technologies – ICIT Rm Valcea Romania; ²Karlsruhe Institute of Technology, Germany

4. MODIFIED GAS DIFFUSION LAYER FOR FUEL CELLS SYNTHESIZED BY PULSED LASER ABLATION

Daniela EBRASU^{1*}, Gabriela DORCIOMAN², Ionut ENCULESCU³, Nicolae SERBAN², Emil AXENTE², Felix SIMA², Carmen RISTOSCU², Ioan N. MIHAILESCU², Ioan STEFANESCU¹

¹National Research and Development Institute for Cryogenics and Isotopic Technologies - ICIT Rm. Valcea, Romania; ²Lasers Department, National Institute for Lasers, Plasma and Radiations Physics, Magurele, Ilfov, Romania; ³National Institute of Materials Physics, Magurele, Ilfov, Romania

5. A CFD INVESTIGATION OF MEMBRANE REACTOR FOR METHANE STEAM REFORMING

Elena CARCADEA¹, Mihai VARLAM¹, Ioan STEFANESCU¹, Derek B. INGHAM², Vasile TANISLAV¹, Catalin CAPRIS¹, Horia ENE³, Bogdan NICOLESCU⁴

¹National Research and Development Institute for Cryogenics and Isotopic Technologies – ICIT Rm. Valcea, Romania; ²CFD Centre, Leeds University; ³Romanian Academy of Sciences, Mathematical Institute, Bucharest, Romania; ⁴Pitesti University Faculty of Mathematics

6. HEAT TRANSFER MANAGEMENT IN PEMFC

Eden MAMUT, Rita Elena AVRAM, Camelia BACU, Claudiu FERCU

BSUN - Center for Advanced Engineering Sciences, “Ovidius” University of Constantza, Romania

11⁰⁰ - 11³⁰ Coffee Break

11³⁰ – 14⁰⁰

7. STRUCTURAL AND MORPHOLOGICAL INVESTIGATIONS OF DOUBLE DOPED CERIA MATERIALS FOR SOFC APPLICATIONS

Nicoleta CIOATERĂ

University of Craiova, Faculty of Chemistry, Craiova

8. METHODS FOR INVESTIGATING DEGRADATION PHENOMENA IN MEMBRANE ELECTRODE ASSEMBLIES (MEA)

Camelia BĂCU, Rita AVRAM, Eden MAMUT

Center for Advanced Engineering Sciences, “Ovidius” University of Constantza, Romania

9. DEVELOPMENT OF THE MEMBRANE PERMEATOR FOR HYDROGEN PRODUCTION TO ICIT - RM. VALCEA

Ioan IORDACHE¹, Mircea RACEANU¹, Marian CURUIA¹, Jong Soo CHO²

¹National Research and Development Institute for Cryogenics and Isotopic Technologies - ICIT Rm. Valcea, Romania; ²Catholic University of Korea, Seoul, Korea

10. THE IMPROVEMENT OF THE EFFICIENCY OF ANAEROBIC DIGESTION IN BIO-HYDROGEN PLANTS BY OPTIMAL BLENDED BIOMASS

Ana-Maria PAIZAN, Laurentiu OANCEA, Eden MAMUT

Center for Advanced Engineering Sciences, “Ovidius” University of Constantza, Romania

11. HYDROGEN ISOTOPES, OXIGEN-18 AND CARBON-14 USED TO ESTIMATE AQUIFER RECHARGE CONDITIONS

I. FAURESCU¹, A. FERU², C. VARLAM¹, D. FAURESCU¹, I. VAGNER¹, S. CUNA³, C. COSMA⁴

¹National Research and Development Institute for Cryogenic and Isotopic Technologies-ICIT Rm. Valcea, Romania; ²National Company of Mineral Waters, Bucharest, Romania; ³National Institute of Research-Development for Isotopic and Molecular Technologies, Cluj-Napoca, Romania; ⁴Faculty of Environmental Science, “Babes-Bolyai” University Cluj-Napoca, Romania

12. GAMMA RADIATION ABSORPTION STUDY ON CRYOGENIC MULTILAYER INSULATION

Sorin GHERGHINESCU

National Research and Development Institute for Cryogenics and Isotopic Technologies – ICIT Rm. Valcea, Romania

13. ASSESSING WINE QUALITY USING ISOTOPIC METHODS

Diana COSTINEL, Roxana Elena IONETE, Raluca VREMERĂ and Ioan STEFANESCU

National Research and Development Institute for Cryogenics and Isotopic Technologies – ICSI Rm. Valcea, Romania

14⁰⁰ – 15³⁰ Lunch (Buffet)

15³⁰ – 19⁰⁰ Visit of the “Anton PANN” Theatre from Ramnicu Valcea and Theatre performance

20⁰⁰ – 24⁰⁰ - Festive Dinner

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**PROGRAM
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October 14, 2010

CRYOGENICS TECHNOLOGIES AND EQUIPMENTS

**P.1. RESEARCH & DESIGN AN AUTOMATIC INSTALLATION FOR CATALYST
AT HEAVY WATER DETRITIATION**

Vasile Anghel¹, Ioan Ștefănescu¹, Ion Cristescu², Ionut Spiridon¹, Dan Mocanu¹

¹National Research and Development Institute for Cryogenics and Isotopic Technologies – ICIT Rm. Valcea Romania; ²Association EURATOM - FZK - Tritium Laboratory (TLK), Karlsruhe, Germany JET

**P.2. ASSESSMENT OF THE CRYOGENIC DISTILLATION SYSTEM FROM
CERNAVODA TRITIUM REMOVAL FACILITY**

Gheorghe PAȘCA¹, Mirela DRĂGHIA¹, Florina PORCARIU¹, George ANA²

¹S.C. I.S.Tech S.R.L Timisoara; ²National Research and Development Institute for Cryogenics and Isotopic Technologies - ICIT Rm. Valcea, Romania

SCIENCE AND MATERIALS ENGINEERING

P.3. CERAMIC PIGMENTS BASED ON TIN OXIDE FOR CERAMICS

Cezara VOICA

National Institute for R&D of Isotopic and Molecular Technologies, Romania

**P.4. REACTION BETWEEN HYDROGEN ISOTOPES AND TITANIUM SPONGE AND POWDER
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F. VASUT, A. PREDA, C. DAVID, N. SOFALCA

National Research and Development Institute for Cryogenics and Isotopic Technologies – ICIT Rm. Valcea, Romania

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Irina PETREANU, Claudia SISU, Daniela EBRASU, Mihai VARLAM

National Research and Development Institute for Cryogenics and Isotopic Technologies – ICIT Rm. Valcea, Romania

P.6. THE OPERATION OF THE RECIRCULATING LOOP FOR CORROSION TESTS

D. ASTEFANESEI, M. PANTARU, D. LUCAN, M. STOICA

Institute for Nuclear Research, PO Box 78, Mioveni, 115400, Pitesti, Romania

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M. ZAMFIRACHE, A. BORNEA, I. STEFANESCU, L. STEFAN, N. BIDICA, F. VASUT, C. DAVID
National Research and Development Institute for Cryogenics and Isotopic Technologies – ICIT Rm. Valcea Romania

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Ovidiu BALTEANU*, Iuliana STEFAN, Ciprian BUCUR, Liviu STEFAN
National Research and Development Institute for Cryogenics and Isotopic Technologies – ICIT Rm. Valcea Romania

P.9. CNE CERNAVODA - MANAGEMENT OF INTERNAL TRITIUM EXPOSURES

Cătălina CHITU, Ion POPESCU, Liliana SAMSON, Vasile SIMIONOV
CNE Cernavoda NPP, Romania

P.10. NEUTRON FILTERS FOR THE JET GAMMA-RAY CAMERAS UPGRADE

M. CURUIA¹, M. ANGHEL¹, N. BALSHAW², P. BLANCHARD³, T. CRACIUNESCU⁴, T. EDLINGTON², M. GHERENDI⁴, V. KIPTILY², K. KNEUPNER⁵, I. LENGAR⁶, A. MURARI⁷, P. PRIOR², S. SANDERS², M. SCHOLZ⁸, S. SOARE¹, I. STEFANESCU¹, B. SYME², V. ZOITA⁴, AND JET-EFDA CONTRIBUTORS*

**JET-EFDA, Culham Science Centre, Abingdon, UK; ¹Association EURATOM-MEdC, National Institute for Cryogenics and Isotopic Technologies, Rm. Valcea, Romania; ²Association EURATOM-CCFE/JOC, Culham Science Centre, Abingdon, UK; ³Association EURATOM-CRPP-EPFL, Lausanne, Switzerland; ⁴Association EURATOM-MEdC, National Institute for Laser, Plasma and Radiation Physics, Bucharest, Romania; ⁵Association EURATOM-FZJ, Jülich, Germany; ⁶Association EURATOM-MHST, Jozef Stefan Institute, Ljubljana, Slovenia; ⁷Association EURATOM-ENEA, RFX, Padova, Italy; ⁸Association EURATOM-IPPLM, Institute of Plasma Physics and Laser Microfusion, Warsaw, Poland*

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Gheorghe FLORESCU¹, Valeriu PANAITESCU², Adrian POPA¹
¹Institute for Nuclear Research Pitesti, No.1, Campului Street, 115400-Mioveni, Romania; ²„Politehnica” University, Bucharest

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Relu DOBRIN¹ and Margarit PAVELESCU²
¹Institute for Nuclear Research, Pitesti, Romania; ²Academy of Romanian Scientists, Bucharest, Romania

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Adriana MARINOIU¹, Ioan IORDACHE², Mihaela IORDACHE³, Constantin TEODORESCU¹, Daniela MARINESCU¹

¹S.C. OLTCHIM S.A.- Research Center, Romania; ²National Research and Development Institute for Cryogenics and Isotopic Technologies – ICIT Rm. Valcea, Romania; ³The National Research & Development Institute for Industrial Ecology – ECOIND, Rm. Valcea, Romania

P.14. A KINETIC AND MASS TRANSFER MODEL FOR GLYCEROL HYDROGENOLYSIS

Ioan IORDACHE¹, Adriana MARINOIU², Mihaela IORDACHE³, Claudia COBZARU⁴

¹National Research and Development Institute for Cryogenics and Isotopic Technologies – ICIT Rm. Valcea Romania; ²S.C. OLTCHIM S.A.- Research Center, Romania; ³The National Research & Development Institute for Industrial Ecology – ECOIND, Rm. Valcea, Romania; ⁴Faculty of Industrial Chemistry, Technical University of Iasi, Iasi

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Mircea RACEANU, Ioan IORDACHE, Gabriel RASOI, Marian CURUIA

National Research and Development Institute for Cryogenics and Isotopic Technologies – ICIT Rm. Valcea, Romania

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Vasile ANGHEL, Ioan ȘTEFĂNESCU, Mihai VARLAM, Mihai CULCER

National Research and Development Institute for Cryogenics and Isotopic Technologies – ICIT Rm. Valcea, Romania

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Violeta NICULESCU, Mihai ANGHEL, Nadia PAUN

National Research and Development Institute for Cryogenics and Isotopic Technologies – ICIT Rm Valcea Romania

P.18. GOODNESS-OF-FIT TESTS IN ENVIRONMENTAL RESEARCH – APPLICATION IN RAMNCU VALCEA, ROMANIA, JULY 2010

Liana Simona SBIRNA¹, Monica MATEESCU¹, Anisoara PREDA², Sebastian SBIRNA³

¹University of Craiova, Faculty of Chemistry; ²National Research and Development Institute for Cryogenic and Isotopic Technologies-ICIT Rm. Valcea, Romania; ³Dolj Environment Protection Agency

P.19. INTERLABORATORY STUDY TO IMPROVE THE QUALITY OF TRACE ELEMENT DETERMINATIONS IN SURFACE WATERS

Claudia SANDRU¹, Irina GEANA¹, Andreea IORDACHE¹, Cezara VOICA², Roxana Elena IONETE¹, Diana FLORESCU¹

¹National Research and Development Institute for Cryogenic and Isotopic Technologies-ICIT Rm. Valcea, Romania; ²National Institute for Research and Development of Isotopic and Molecular Technologies, Cluj-Napoca, Romania

P.20. ANTIPROLIFERATIVE EFFECT OF 2-CLORO-3-NICOTINAMIDO-1,4-NAPHTHOQUINONE, A NEWLY SYNTHESIZED NAPHTHOQUINONE

Iulia PRODAN¹, Radu MANALACHIOAE¹, Bogdan SEVASTRE¹, Violeta NICULESCU², Nadia PAUN², Radu TAMAIAN², Ioan MARCUS¹

¹Faculty of Veterinary Medicine, University of Agricultural Science and Veterinary Medicine, Cluj-Napoca, Romania; ²Research and Development Department, National Research and Development Institute for Cryogenics and Isotopic Technologies – ICIT Rm. Vâlcea, Romania

LABORATORY ANALYSIS METHODS

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Nadia PAUN, Violeta NICULESCU, Radu TAMAIAN

National Research and Development Institute for Cryogenics and Isotopic Technologies – ICIT Rm. Valcea, Romania

P.22. METAL CONTENT AND ISOTOPIC CHARACTERIZATION OF ARCHAEOLOGICAL SAMPLES. PRELIMINARY RESULTS

Cezara Voica, Adriana Dehelean, Zoia Maxim

¹National Institute for R&D of Isotopic and Molecular Technologies, Cluj-Napoca 5, Romania; ²History Museum of Transylvania, Cluj-Napoca, Romania

AGRICULTURE AND FOOD SAFETY

P.23. THE POTENTIAL OF DEUTERIUM AND OXYGEN ISOTOPES IN EVALUATING DIFFERENT WATER SOURCES

Diana COSTINEL¹, Roxana IONETE¹, Raluca VREMERA¹ and C. Jong SOO²

¹National R&D Institute for Cryogenics and Isotopic Technologies – ICTI Rm. Valcea, Romania; ²The Catholic University of Korea, Korea

P.24. SIMULTANEOUS DETERMINATION OF FIVE RED SYNTHETIC COLORANTS IN COUNTERFEIT WINE BY REVERSED-PHASE HIGH-PERFORMANCE LIQUID CHROMATOGRAPHY COUPLED WITH DIODE-ARRAY DETECTION

Irina GEANA¹, Roxana IONETE¹, Rodica PASA², Elena POSTOLACHE³, Aurora RANCA⁴

¹National Research and Development Institute of Cryogenics and Isotopic Technologies – ICIT Rm. Valcea, Romania; ²Vine and Wine Research-Development Station Iasi; ³Vine and Wine Research-Development Station Bujoru; ⁴Vine and Wine Research-Development Station Murfatlar

P.25. APPLICATIONS OF STABLE ISOTOPE RATIOS IN FRUIT JUICES AUTHENTICATION

Dana Alina MAGDAS, Adriana DEHELEAN, Cezara VOICA, Romulus PUSCAS

National Institute for Research and Development of Isotopic and Molecular Technologies, Cluj-Napoca, Romania

P.26. PHENOLIC COMPOUND PROFILES IN SIX VARIETIES OF ROMANIAN WINES WITH DIFFERENT GEOGRAPHICAL ORIGINS

Irina GEANA¹, Roxana Elena IONETE¹, Aurelia TUDORACHE², Rodica PASA³, Elena POSTOLACHE⁴, Aurora RANCA⁵

¹National R&D Institute for Cryogenics and Isotopic Technologies – ICSI Rm. Valcea, Romania; ²Valea Calugareasca Viticulture Research Station; ³Iasi Viticulture Research Station; ⁴Bujoru Viticulture Research Station; ⁵Murfatlar Viticulture Research Station

The papers programated on Thursday, October 14, 2010, will be placed on panels Thursday in the morning from 8⁰⁰-9⁰⁰ a.m.

Organizing Committee

**The 16-th Conference
"Progress in Cryogenics and Isotopes Separation"**

**PROGRAM
of the Oral Session/Papers**

Hotel "COZIA" Hall

October 15, 2010

Chairman: Dr. Dumitru Ohâi
Co-chairman: Dr. Elena Carcadea
Presentation time: 20 min.

9⁰⁰ – 11⁰⁰

1. NEW APPRAISE OF SITING FOR NPP ON MUREȘ RIVER

Traian MAUNA

AREN, Bucharest, Romania

2. DETERMINATION OF GAMA AND ALPHA/BETA-ACTIV ISOTOPES FROM ENVIRONMENT SAMPLES

Mihaela VLADU, Gheorghe BULUBASA, Alina MIU

National Research and Development Institute for Cryogenic and Isotopic Technologies-ICIT Rm. Valcea, Romania

3. USING HEAT PUMPS TO RECOVER HEAT LOST IN ELECTRICAL POWER PLANTS

Iulian Pavel NITĂ, Mircea TENESCU, Iuliana Monica BĂLTĂREȚU

C.I.T.O.N. București - Măgurele, Romania

4. EXPERIMENTAL H₂ AND D₂ EXTRACTION RIG WITH ACTIVE CHARCOAL PACKING

I. SPIRIDON, S. BRAD, I. ȘTEFĂNESCU, M. VIJULIE, A. LAZAR, G. ANA

National Research and Development Institute for Cryogenic and Isotopic Technologies-ICIT Rm. Valcea, Romania

5. ESTIMATION OF UNCERTAINTY BY GAS-CHROMATOGRAPHIC METHOD OF MIXTURES OF HYDROGEN ISOTOPES

I. PICIOREA, A. OUBRAHAM, A. STEFANESCU, C. MLADIN

¹National Research and Development Institute for Cryogenics and Isotopic Technologies – ICIT Rm. Valcea, Romania; ²Mecro System, 100P, Timisoara Blvd., Bucharest-6, Romania

6. ANKERSMID'S PRODUCTS OVERVIEW

Ana TERTELEAC

Ankersmid NV– Reprezentanta, Bucuresti, Romania

11⁰⁰ – 11³⁰ - Coffee Break

11³⁰ – 13³⁰

7. HIGH Ni ALLOYS-CANDIDATE MATERIALS FOR GEN IV NUCLEAR REACTOR

Sanda Cristina VULPE¹, Dumitru OHAI², Marioara ABRUDEANU¹

¹University of Pitesti, Romania; ²Institute for Nuclear Research Pitesti, Romania

**8. COMPUTATIONAL PROTONATION STUDY OF A NEW SYNTHETIC ANTICANCER
NAPHTHOQUINONE**

Radu TAMAIAN, Violeta NICULESCU, Mihai ANGHEL

National Research and Development Institute for Cryogenics and Isotopic Technologies – ICIT Rm. Valcea,
Romania

**9. ADDITION OF SYNTHETIC AROMAS TO WINE – CONSIDERATIONS REGARDING THE
DETECTION**

Raluca VREMER¹, Diana COSTINEL¹, Roxana Elena IONETE¹, C. Jong SOO²

¹National Research and Development Institute for Cryogenics and Isotopic Technologies – ICIT Rm. Valcea,
Romania; ²The Catholic University of Korea, Korea

**10. TREND AND ABATEMENT SCENARIOS FOR CRITERIA POLLUTANTS
CONCENTRATIONS IN RAMNICU VALCEA INDUSTRIAL PERIURBAN AREA**

A. DRAGOMIR¹, D. ZISU¹, G. MOCIOACA¹, M. ZAPLAIC¹, M. ILIESCU², M. CULCER²

¹SC CEPSTRA GRUP SRL, Bucharest; ²Institutul National de Cercetare-Dezvoltare pentru Tehnologii
Criogenice si Izotopice - ICIT Rm.Valcea, Romania

**11. TRITIUM CONTAMINATION OF THE WALLS OF A TRITIUM STORAGE BED AFTER
THE FIRST USE**

Gheorghe BULUBASA, Nicolae BIDICA, Felicia VASUT

National Research and Development Institute for Cryogenic and Isotopic Technologies-ICIT Rm. Valcea,,
Romania

12. THEORETICAL OVERVIEW OF INDUSTRIAL RISK ASSESSMENT

Gheorghe POPESCU, Marian VĂCARU, Iuliana PICIOREA

National Research and Development Institute for Cryogenic and Isotopic Technologies-ICIT Rm. Valcea,
Romania

13³⁰ – 14³⁰ – Lunch (Buffet)

14³⁰ - Conference Closure

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