

European Nuclear Education Network Association
3rd ENEN PhD Event 2009
International Youth Conference on Energetics 2009 in Budapest, Hungary, 5 June 2009

Summary report by the Secretariat

1 ENEN PhD Event

The ENEN PhD Event has been organized since 2007 with the objectives:

- to provide a forum for PhD students to present their research work to their fellows and colleagues in a friendly but competitive spirit
- to promote the research work of PhD students in the nuclear field
- to set up a bridge between PhD students and professionals in the nuclear field

The 1st ENEN PhD Event was held in conjunction with the International Youth Conference on Energetics (IYCE 2007) in Budapest, Hungary, 1 June 2007 with the selected 12 PhD students. The 2nd Event was held in conjunction with the International Youth Nuclear Congress (IYNC 2008) in Interlaken, Switzerland, 23 September 2008 with the selected 14 students.

The 3rd Event took place in the framework of the International Youth Conference on Energetics 2009 (IYCE 2009)¹ at the Budapest University of Technology and Economics² in Budapest, Hungary, on 5 June 2009 at 9-18h. 12 PhD students were selected by the ENEN PhD Event 2009 Jury from 6 European countries (Belgium, France, Italy, Switzerland, Slovakia and Slovenia) and South Africa³. The announcement and the application form for the Event are given at Annex I and II.

The members of the Jury of the Event 2009 are:

- | | | | |
|-------------------------------|---|----------------|-------|
| - Michel Giot ⁴ , | SCKCEN | Belgium | CHAIR |
| - Joseph Safieh ⁵ | CEA/INSTN | France | |
| - Philip Beeley | CMT | United Kingdom | |
| - Emilio Minguez | Universidad Politecnica de Madrid | Spain | |
| - Petre Ghitescu ⁶ | University Politechnica Bucharest | Romania | |
| - Csaba Sukosd ⁷ | Budapest University of Technology and Economics | Hungary | |

¹ Held on 4-6 June 2009, see <http://www.iyce2009.org/>

² H-1117 Budapest, Magyar tudósok körútja 2, see <http://www.reak.bme.hu>

³ North West University in South Africa is a partner of the ENEN through Memorandum of Understanding

⁴ Present at the Event on 5 June 2009

⁵ Present at the Event on 5 June 2009

⁶ Present at the Event on 5 June 2009

⁷ Present at the Event on 5 June 2009

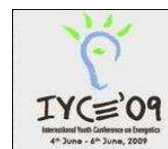
- Rakesh Chawla⁸ Swiss Federal Institute of Technology Lausanne Switzerland
- Bruno Panella⁹ Consortium Interuniversitario Italy
- Bernard Bonin European Nuclear Society High Scientific Council

Following the opening remark by the Chair of the Jury, the ENEN President gave an introduction of the ENEN activities. 12 PhD students presented their research work for 20 minutes followed by 10 minutes questions and discussion. All presentations were judged by the Jury members by the following criteria:

1. Quality of the paper
2. Ability to communicate the message (clarity of the presentation)
3. Ability to communicate the enthusiasm
4. Quality of the iconographic materials
5. Formal compliance with the rules (respect of the allotted time)

Three ENEN Prizes were given during the Award Ceremony at the beginning of the Gala Dinner of IYCE 2009 on the same day.

The Event 2009 was held in cooperation with the European Nuclear Society and the IYCE 2009.



2 Program of the Event

- 09:00-09:10 **OPENING OF THE EVENT**
 Prof. em. Michel GIOT, *Université catholique de Louvain, Belgium, Chair of the Jury*
- 09:10-09:20 Introduction of the ENEN Association
 Prof. Joseph SAFIEH, *CEA/INSTN, France, President of ENEN*
- 09:20-11:00 **SESSION 1: PHYSICS AND CODES**
 Chair: Prof. Rakesh CHAWLA, *Ecole Polytechnique Fédérale de Lausanne, Switzerland*
- 09:20 Daniele TOMATIS (*Politecnico di Torino, Italy*): Application of the Migration Mode Method (MMM) in Reactor Physics
- 09:50 Benoit HABERT (*CEA-Cadarache, France*): Estimation of Uncertainties in the Nuclear Reaction Cross Sections Evaluation.
- 10:20 Alessandro PETRUZZI (*Università di Pisa, DIMNP, Italy*): Development and Application of Methodologies for Sensitivity Analysis and Uncertainty Evaluation of the Results of the Best Estimate System Codes Applied in Nuclear Technology.
- 10:50 Closing the session
- 11:00-11:20 *Coffee break*

⁸ Present at the Event on 5 June 2009

⁹ Present at the Event on 5 June 2009

- 11:20-13:00 **SESSION 2: MATERIALS AND THERMAL SCIENCES**
Chair: Prof. Csaba SÜKÖSD, *Budapest University of Technology and Economics, Hungary*
- 11:20 Julien CABRERO (*CEA-Cadarache, France*): Titanium Carbide and Silicon Carbide Thermal Conductivity under Heavy Ions Irradiation
- 11:50 Giovanni BONNY (*SCK•CEN, Belgium*): Many-body interatomic potentials to model radiation damage in reactor pressure vessel steels and in-core components
- 12:20 Werner VAN ANTWERPEN (*North-West University Potchefstroom Campus, South Africa*): Modelling of the Effective Thermal Conductivity in the Near-Wall Region of a Packed Pebble Bed.
- 12:50 Closing the session
- 13:00-14:00 *Lunch break*
- 14:00-15:40 **SESSION 3: GENERATION IV SYSTEMS**
Chair: Prof. Petre GHITESCU, *Universitatea Politehnica din Bucuresti, Romania*
- 14:00 Leïla GICQUEL (*CEA-Cadarache, France*): Determination of Sodium-Carbon Dioxide Reaction Kinetics for a Nuclear Application on Sodium Fast Reactors.
- 14:30 Aaron EPINEY (*Ecole Polytechnique Fédérale de Lausanne and PSI, Switzerland*): Gas-Cooled Fast Reactor : Studies on Safety Enhancement.
- 15:00 Valentino di MARCELLO (*Politecnico di Milano, Italy*): A Multi-Physics Approach to the Modelling of the Molten Salt Reactor.
- 15:30 Closing the session
- 15:40-16:10 *Coffee break*
- 16:10-17:50 **SESSION 4: SAFETY AND WASTES**
Chair: Prof. Bruno PANELLA, *Politecnico di Torino, Italy*
- 16:10 Andrija VOLKANOVSKI (*Jožef Stefan Institute, Slovenia*): Impact of Offsite Power System Reliability on Nuclear Power Plant Safety.
- 16:40 Magali MAGNIN (*CEA-Marcoule, France*): Control of Phase Separation and Crystallisation Phenomena in Simplified High Level Nuclear Waste Glasses.
- 17:10 Matej ZACHAR (*Slovak University of Technology in Bratislava, Slovakia*): The Analysis of Metal Melting Application in the Waste Management Strategies Applied in the Nuclear Installation Decommissioning Process.
- 17:40 Closing the session
- 17:50-18:00 **CLOSING THE EVENT**
Prof. em. Michel GIOT, *Université catholique de Louvain, Belgium, Chair of the Jury*
- 18:00-18:45 Deliberation of the Jury
- 20:00 at the beginning of the Gala Dinner: **AWARD CEREMONY**
Proclamation of the results by Prof. em. Michel GIOT, Chair of the Jury
Certificates given by Prof. em. Michel GIOT, Chair of the Jury
Prizes given by Prof. Joseph SAFIEH, President of ENEN

3 Laureates of the ENEN PhD Prize

Three equal laureates of the ENEN Prize are as follows:

- Giovanni BONNY (*SCK•CEN, Belgium*)
- Aaron EPINEY (*Ecole Polytechnique Fédérale de Lausanne and PSI, Switzerland*)
- Werner VAN ANTWERPEN (*North-West University Potchefstroom Campus, South Africa*)

The ENEN Prizes were given by the ENEN President at the Award Ceremony on 5 June 2009.

The laureates are encouraged to present a paper at the GLOBAL 2009¹⁰ to be held in Paris, France, 6–11 September 2009, or in case it is not convenient the ENC 2010¹¹ to be held in Barcelona, Spain, 30 May–3 June 2010. The ENEN will support his/her participation up to 1000 Euro (travel, accommodation and meals) upon receipt of justification documents.

4 Logistics issue

The efficient cooperation with IYCE 2009 organizer is particularly appreciated and acknowledged. It covers all aspects of the Event organization including:

- Special time schedule for ENEN
- Conference fee for the students at the amount of early payment
- No conference fee for the ENEN Jury members and staff
- A meeting room for the Jury
- A group picture

The main expenditures by the ENEN were:

- 1000 Euro as a contribution to the IYCE 2009
- Conference fee for 12 students (the amount of early payment)
- Gala dinner for 4 Jury members (except Joseph Safieh¹² and Csaba Sukosd¹³) and the ENEN staff
- Travel expenses for 12 students, 4 Jury members (except Joseph Safieh and Csaba Sukosd) and the ENEN staff
- Three ENEN Prizes (Up to 1000 Euro per laureate and frames)

It was recognized that

- The contents of application form should be elaborated.
- “Experimental work” and “active participation in discussion during the Event” should be included in the criteria for the Jury evaluation
- The criteria of the Jury evaluation should be informed at earlier stage.
- An evaluation sheet for the Jury can be prepared in advance.
- Participation in the gala dinner is a good opportunity.
- To provide the certificate to all students, before awarding the ENEN Prize, is preferable.
- The contents of the Prize should be decided at earlier stage. Negotiation of conference fee for the ENEN Prize laureates’ participation is welcomed.

¹⁰ See https://www.sfen.fr/index.php/plain_site/global_2009

¹¹ See <http://www.euronuclear.org/events/enc/enc2010/index.htm>

¹² As an invited speaker

¹³ As an IYCE Committee member

Annex I

**The 3rd ENEN PhD Event 2009
International Youth Conference on Energetics 2009
In Budapest, Hungary, 5 June 2009 at 9-18h**

4th Announcement on 24 March 2009

1 Objective

In the framework of the International Youth Conference on Energetics 2009 in Budapest, Hungary, 4-6 June 2009 (<http://www.iyce2009.org/>) the European Nuclear Education Network (ENEN) Association is organizing the 3rd ENEN PhD Event 2009.

The objectives of the ENEN PhD Event are:

- to provide a forum for PhD students to present their research work to their fellows and colleagues in a friendly but competitive spirit
- to promote the research work of PhD students in the nuclear field
- to set up a bridge between PhD students and professionals in the nuclear field

2 Date and venue

Date: Friday 5th June 2009 at 9-18h (provisionally)

Venue: Budapest University of Technology and Economics
Website <http://www.reak.bme.hu>

3 General program

The Event will consist of 12 PhD presentations nominated by ENEN Members and selected by the ENEN PhD Event Jury. The Event will be divided into 3 or 4 sessions according to the subject. The participants will make a presentation for their research work for 15-20 minutes followed by 5-10 minutes questions and discussion.

All presentations will be judged by the Jury members on the submitted paper as well as on the quality of their presentation and on the clarity in the discussion while answering the questions and discussions. Three best presentations will be given the ENEN prize. A ceremony will be held at the end of the Event.

The members of the Jury:

- Michel Giot (SCKCEN, Belgium) CHAIR
- Joseph Safieh (CEA/INSTN, France)
- Philip Beeley (HMS Sultan, United Kingdom)
- Emilio Minguez (Universidad Politecnica de Madrid, Spain)
- Petre Ghitescu (University Politechnica Bucharest, Romania)
- Csaba Sukosd (Budapest University of Technology and Economics, Hungary)
- Rakesh Chawla (Swiss Federal Institute of Technology Lausanne, Switzerland)
- Bruno Panella (Consortium Interuniversitario, Italy)
- Bernard Bonin (European Nuclear Society High Scientific Council)

The detailed program will be available after the selection of the participants is completed (See 6).

The 3rd ENEN PhD Event 2009 is held in cooperation with the European Nuclear Society.

4 Qualification for application

Applicants should be either

- PhD students studying or working at the ENEN Members or the ENEN-II partners in any nuclear field, or
- those who completed his/her PhD at an ENEN Member or an ENEN-II partner after the application deadline of the previous ENEN PhD Event.

All abstracts and papers submitted to the Event will be included in the Conference proceedings.

All abstract, papers and presentations provided for the Event will be shared among the ENEN Members after the Event.

For the selected PhD students, ENEN will support the registration fee of the Conference as well as their travel expenses up to a certain amount as informed prior to the Event.

5 How to apply

1) Application form (See Annex I)

- Contact details of the student
- Contact details of the nominating ENEN Member
- Recommendation by ENEN Member
- Two-page **abstract** of the research work to be presented

2) Application form has to be sent by e-mail to

Ryoko Kusumi
Secretary General of the ENEN Association
ryoko.kusumi@cea.fr

3) Deadline of the application: **15 March 2009**

Note: All selected participants will be requested 1) to submit a paper on their research work to be presented, according to the IYCE format, by 26 April 2009 and 2) to bring a power point presentation by a memory stick to the Event directly. (See 6)

6 Time schedule

15 March 2009 Deadline for the application (See 5)

24 March 2009 Jury meeting for selection

By 27 March 2009 Inform the selected students (by e-mail)

By 3 April 2009 1) Confirmation of participation (by e-mail) and 2) Registration at the IYCE website (<http://www.iyce2009.org/>) by the selected students

No confirmation before end of 3 April is considered as default.

- By 10 April 2009 Payment by the ENEN to the IYCE
- 26 April 2009 Deadline of the submission of paper by the participants
All participants are requested to submit a paper on their research work to be presented according to the IYCE format
- 1 May 2009 Announce the final program
- 5 June 2009 3rd ENEN PhD Event
All participants are requested to bring a power point presentation by a memory stick to the Event directly

7 Contact

Ryoko Kusumi

Secretary General of the ENEN Association

Centre CEA de Saclay - INSTN - Bldg 395

F-91191 Gif-sur-Yvette Cedex, France

Tel +33 1 69 08 97 57 Fax +33 1 69 08 99 50

Email ryoko.kusumi@cea.fr

Web site ENEN Association <http://www.enen-assoc.org>

PhD page <http://www.enen-assoc.org/en/activities/for-students/phd.html>

Annex II

The 3rd ENEN PhD Event 2009
International Youth Conference on Energetics 2009
In Budapest, Hungary, 5 June 2009 at 9-17h

Application form

1 CONTACT DETAILS OF THE STUDENT

Name **Sex**
Date of birth **Nationality**
Institution
Address
Tel **Fax**
E-mail

2 CONTACT DETAILS OF THE NOMINATING ENEN MEMBER

Name **Institution**
Address
Tel **Fax**
E-mail

3 REASON FOR NOMINATION (publication, prizes etc. – Should be written by the nominating ENEN Member with a signature)

4 TITLE AND ABSTRACT OF THE PAPER (about two-page)