## **Final Program**



## 4-6 June 2012 Organized by





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## **General Information**

## 1.1 Conference Location

The Conference itself is held at



The <u>Faculty of Information</u>
<u>Technology</u>
BUT, Božetěchova 2,
612 66 Brno, Czech Republic

Tel.: +420 54114 1144

Fax: +420 54114 1270

Email: info@fit.vutbr.cz

The meeting room is **room A113**. The registration desk will be placed near the meeting room. Registration will start on Monday at 8.30 a.m. till 5.00 p.m. On Tuesday it will be from 8.30 a.m. - 5.00 p.m. with Wednesday registration only from 9.00 a.m.- 09.30. a.m. The faculty itself is located in Kralovo Pole, location of the Cartesian monastery. The location can be reached by tram and bus.

## ALL MAPS ARE AT THE BACK OF THIS PROGRAMME

## 1.2 Badges

Each registrant will receive a name badge upon registration. The badge must be worn in order to be admitted to the technical sessions, lunches and social event.

## 1.3 Tickets

Extra tickets for the social event and lunches are available from the Registration desk. (at conference prices)

Price: (or equivalent in another currency) for extra tickets. All participants will be issued with tickets for lunch and the conference dinner. **Or just the badge will apply.** 

conference dinner:	€ 45
lunch	€ 25

## 1.4 Registration

The **ISC'2012** Registration Desk will be open for information and registration:

Monday, June 4	8.30 a.m.	to	5.00 p. m.
Tuesday, June 5	8.30 a.m.	to	5.00 p. m.
Wednesday, June 6	9.00 a.m.	to	9.30 a.m.

4

## **General Information**

## 1.5 Conference Proceedings

Each fully paid registrant will be provided with a copy of the Conference Proceedings (printed format). (Extra copies are available on a **cash and carry** basis at special rates during ISC-2012)

Price: (or equivalent in another currency) for an extra copy

ISC'2012 Proceedings	€ 50
Other Proceedings –see price list at desk	

Other Proceedings can be ordered using the forms available at the conference.

## 1.6 Meeting Room

The meeting room is room A113. Directions to the room will be signposted.

## 1.7 Internet Connection

There is full free WIFI at the conference site.

## 1.9 Need Help?

Please see the conference desk for your questions

## 1.10 Social Events and Lunches

## All registrants are invited:

To the **Coffee Breaks** and **lunches** for the  $2 \frac{1}{2}$  days which will be served at the Faculty of Information Technology.

## To the **Conference Dinner**



The conference dinner will be held on the 5th of June in the evening at the U Královny Elišky Mendlovo náměstí 1b 603 00 Brno

📴 Tel: +420 543 212 578

Email: <a href="mailto:info@ukralovnyelisky.cz">info@ukralovnyelisky.cz</a>
We will meet at the entrance of the restaurant at 19.30 p.m

## **General Information**

## 1.12 Best Paper Award

During the conference the papers, which were accepted as <u>extended papers</u> will be judged by the committee and participants in order to choose the best paper of the ISC'2012 conference. The best paper candidate receives a certificate signed by the General Conference and Program Chairs and also a free registration to any EUROSIS conference within 2 years of receipt of the prize.

## 1.13 Paper Legend:

Each paper is designated before each paper by its number. This number has to be entered on the form for the best paper award

The room has an LCD projector and an overhead projector

### **SESSION CHAIRPERSONS:**

## ALL SESSION CHAIRPERSONS IN THIS PROGRAM ARE PROVISIONAL.

Session Chairs are chosen on a voluntary basis by proposals by either authors or local committee members or are appointed by the Track Chairs, General Program Chair or General Conference Chair. They are responsible for their assigned session. They make sure their speakers are available, take care of the timing within the session, chair the discussion after each presentation and introduce each speaker based on the CV's given to them by the authors. If a session chair is not available then the first author takes on the responsibility to chair

## Sessions with extended papers:

If you are a session chair in a session with extended papers make sure the session participants have a copy of the best paper award form and ask them to return them to you at the end of the session. After the session hand over the collected forms to Philippe Geril

THE NUMBERS NEXT TO THE PRESENTATIONS DENOTE THE PAGE-NUMBERS IN THE PROCEEDINGS. IF NO NUMBERS ARE MENTIONED THEN THIS PAPER IS NOT PUBLISHED IN THE PROCEEDINGS

THE AUTHORS WHO ARE UNDERLINED ARE NORMALLY THE PRESENTERS

ONLY PAPERS IN GREY BOXES ARE THE EXTENDED PAPERS ELIGIBLE FOR THE BEST PAPER AWARD

MONDAY	7, 4 <sup>th</sup> JUNE 2012						
08.30-17.00	REGISTRATION						
09.00-09.15	OPENING SESSION I						
09.15-10.00	KEYNOTE ADDRESS BY MARTIN HRUBY -MEETING ROOM A113						
10.00-10.30	COFFEE BREAK						
10.30-12.30	SESSION II						
	MEETING ROOM A113						
	SOFTWARE  DESIGN  SIMULATION						
12.30-13.30	LUNCH BREAK						
13.30-15.00	SESSION III						
	MEETING ROOM A113						
	MANUFACTURING ROBOT CONTROL SIMULATION						
15.00-15.30	COFFEE BREAK						
15.30-18.30	SESSION IV						
	MEETING ROOM A113						
	PROJECT  MANAGEMENT  SIMULATION						
FREE EV	ENING						

TUESDA	Y, 5 <sup>th</sup> JUNE 2012						
08.30-17.00	REGISTRATION						
09.00-10.00	SESSION V						
09.00-10.00	INVITED SPEECH CLEMENS HEITZINGER -ROOM A113						
10.00-10.30	COFFEE BREAK						
10.30-12.30	SESSION VI						
	MEETING ROOM A113						
	ELECTRONICS SIMULATION						
12.30-13.30	LUNCH BREAK						
13.30-15.00	SESSION VII						
	MEETING ROOM A113						
	SIMULATION IN TRANSPORT AND LOGISTICS						
15.00-15.30	COFFEE BREAK						
15.30-18.00	SESSION VIII						
	MEETING ROOM A113						
	IN-HOUSE  AND  PRODUCTION  LOGISTICS						
19.30 – 22.00	CONFERENCE DINNER.						

WEDNES	DAY, 6 <sup>th</sup> JUNE 2012
09.00-09.30	REGISTRATION
09.00 10.00	SESSION IX
	MEETING ROOM A113
	SUPPLY CHAIN SIMULATION
10.00-10.30	COFFEE BREAK
10.30 13.00	SESSION X
	MEETING ROOM A113
	SIMULATION IN ENGINEERING
13.00-13.15	CLOSING SESSION XI AND BEST PAPER AWARD – ROOM A113

## Welcome

## Monday, 4<sup>th</sup> June 2012

**HALLWAY** 

Registration

08.30 - 17.00

**MEETING ROOM** 09.00 – 09.15

**KEYNOTE** 

## **Opening ISC2012 and Welcome**

## **Welcome Address**

Doc. Ing. Vladimír Janoušek, Brno University of Technology, Brno, Czech Republic

ISC'2012, General Conference Chair

Ing. Šárka Květoňová,Brno University of Technology, Brno, Czech Republic ISC'2012, General Program Chair

09.15 - 10.00

## MEETING ROOM- 09.15-10.00 KEYNOTE SPEECH

**KEY** 

**Chair:** Vladimír Janoušek, Brno University of Technology, Brno, Czech Republic

## **Modeling the Electricity Markets in Central Europe**

Dr. Martin Hruby, FIT, Brno University of Technology (BUT), Brno, Czech Republic

## Sessions - Monday

## Monday, 4<sup>th</sup> June 2012

10.30 – 12.30
MEETING ROOM- 10.30-12.30 DESIGN SOFTWARE DESIGN SIMULATION Chair: Radek Koci, Brno Univ. of Technology, Brno, Czech Republic
METH_04 Sharing Limited Resources in Software Process Simulations Štěpán Kuchař, David Ježek, Jan Kožusznik and Svatopluk Štolfa33
VERIF_01 Generic Source Code Migration Using Decompilation Lukas Durfina, Jakub Kroustek and Petr Zemek
METH_06 System Dynamic Simulation Engine on Java platform Luboš Chupáč, Jan Korpas, Jan Kožusznik, Svatopluk Štolfa and Oldřich Vašut
MIL_01 Matlab Tool Support for Safety Analysis of High Consequence Arming System Designs Dan Slipper, Alistair A. McEwan, Wilson Ifill, Gordon Hunter, Roger Green and Richard Johnson
12.30 - 13.30 LUNCH BREAK
13.30 – 15.00
ROOM A- 13.30-15.00 MANUF MANUFACTURING ROBOT CONTROL SIMULATION Chair: Radek Koci, Brno Univ. of Technology, Brno, Czech Republic
MANUF_01 Optimizing Blended PTP Movements for Industrial Robots by Means of Metaheuristics Juergen Rossmann, Sven Severin and Oliver Stern

10.00 - 10.30

**COFFEE BREAK** 

## Monday, 4<sup>th</sup>June 2012

MANUF_08 An Adaptive Harmony Search Algorithm to solve a Robotic Assembly
Line Balancing Problem Slim Daoud, Farouk Yalaoui, Lionel Amodeo, Hicham Chehade and Philippe Duperray
MANUF_02 A New Formulation of a Buffered Two Workstation Production Line with Parallel Unreliable Machines Yassine Ouazene, Alice Yalaoui, Hicham Chehade and Farouk Yalaoui
15.00 - 15.30 COFFEE BREAK
15.30 - 18.30
ROOM- 15.30-18.30 MGMT PROJECT MANAGEMENT SIMULATION Chair: Vladimír Janoušek, Brno University of Technology, Brno, Czech Republic, Brno Univ. of Technology, Brno, Czech Republic
ENERG_01 Industry Project Evaluation with the Analytic Hierarchy Process Sebastian Zimmer, Matthias Klumpp and Hella Abidi
METH_08 Modelling of Project Portfolio in Renew based on Object Oriented Petri Nets (OOPN) Michal Němec and Šárka Květoňová
METH_05_AI Generic Model for University Course Timetabling Problem solved by Genetic Algorithm Maqsood Ahmad, Christophe Caux and Michel Gourgand209
METH_09  Model Based Decision Support System for Communal Water Works

# Sessions - Monday

## Monday, 4<sup>th</sup> June 2012

CHEM_02	
Evolution Modeling Algorithm of Biochemical Networks	
Tatjana Rubina and Egils Stalidzans	24
ENERG_02	
Experience with Full 3D Nuclear Reactor Model	
Janos Sebestyen Janosy and Jozsef Pales	63

## **FREE EVENING**

## Sessions - Tuesday

## Tuesday, 5<sup>th</sup> June 2012

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Registration

08.30 - 17.00

09.00 - 10.00

## MEETING ROOM- 09.00-10.00 INVITED SPEECH

INV

Chair: Vladimír Janoušek, Brno University of Technology, Brno, Czech Republic

## Mathematical modeling, simulation, and rational design of nanowire sensors

<u>Dr Clemens Heitzinger</u>, DAMTP, Centre for Mathematical Sciences, University of Cambridge, Cambridge, United Kingdom

10.00 - 10.30 COFFEE BREAK

10.30 - 12.30

## MEETING ROOM - 10.30-12.30 ELECTRONICS SIMULATION

**ELEC** 

Chair: Vladimír Janoušek, Brno University of Technology, Brno, Czech Republic

## ELEC\_01

Kestutis Morkunas and Rimantas Seinauskas......71

## MANUF\_10\_ELEC

## **Usage of Simulators in Testing System**

Ludek Dolihal, Tomas Hruska and Karel Masarik......74

### ANA 01

## Simulation of Aesthetic Rating of CAD Layouts

# Sessions - Tuesday

## Tuesday, 5<sup>th</sup> June 2012

DESIGN_02 Thermal Impulse Sensor with Four Points Acquisition Card for Temperature
Measurement Vlad Jinga, Cornel Samoilă, Doru Ursuţiu and Petrică Cotfas85
12.30 - 13.30 LUNCH BREAK
13.30 - 15.00
MEETING ROOM- 13.30-15.00 LOGIS SIMULATION IN TRANSPORT AND LOGISTICS Chair: Václav Simek, Brno Univ. of Technology, Brno, Czech Republic
TRANS_09_TRAF  Design of a Hybrid Nanoscopic/Microscopic Road Traffic Simulation  Tomas Potuzak
TRANS_01 A Multi Start Iterated Local Search algorithm for the multi compartment vehicle routing problem Cadet David Joseph, Christian Prins, Lionel Amodeo and Farouk Yalaoui
TRANS_08 Simulation Approach for an Integrated Decision Support System for Demand Responsive Transport Planning and Operation Ana Dias, José Telhada and Maria Sameiro Carvalho
15.00 - 15.30 COFFEE BREAK
15.30 – 18.00
ROOM A- 15.30-18.00 LOGIS IN-HOUSE AND PRODUCTION LOGISTICS Chair: Dusan Kolár, Brno Univ. of Technology, Brno, Czech Republic
TRANS_02  Modeling Individual Decision Makers In A Multi Agent Warehouse Simulation Christoph Schwarz and Axel Hahn

## Tuesday, 5<sup>th</sup> June 2012

TRANS_04_LOGIS Simulation in the Design of an Internal Logistic System – Milk Run Delivering with Kanban Control	
Luís S. Dias, Pavel Vik, José A. Oliveira and Guilherme Pereira1	59
MANUF_05 Evaluating Replenishment Systems under Perturbed Environments S. T. Enns and Chandandeep S. Grewal10	69
MANUF_11	
The Redesign of the Process Control of Concrete Systems Ltd. PTY for a more Effective and Efficient Production Process	
M.P.W. van der Velden, H.P.M. Veeke and <u>G. Lodewijks</u>	74
MANUF_06 An Improved Largest GAP Routing Heuristic for Order Picking Jinping Liu, Veronique Limère and Hendrik Van Landeghem1	79

## **CONFERENCE DINNER - 19.30-22.00**



The conference dinner will be held on the 5th of June in the evening at the U Královny Elišky

Mendlovo náměstí 1b 603 00 Brno

📴 Tel: +420 543 212 578

Email: <a href="mailto:info@ukralovnyelisky.cz">info@ukralovnyelisky.cz</a>
We will meet at the entrance of the

restaurant at 19.30 p.m



# essions -Wednesday

## Wednesday, 6<sup>th</sup> June 2012

HALLWAY
Registration
09.00 - 09.30
09.00 – 10.00
ROOM B- 09.00-10.00 MANUF SUPPLY CHAIN SIMULATION Chair: Václav Simek, Brno Univ. of Technology, Brno, Czech Republic
TRANS_03 Supply Chain Replenishment Optimization under Uncertain Demand S. T. Enns and Suvra Saha
TRANS_06_LOGIS Logistic Chain Optimization for Importing Coal on Inland Waterways in Eastern India T. van de Sande, J.A. Ottjes and G. Lodewijks
10.00 - 10.30 COFFEE BREAK
10.30 - 13.00
ROOM A- 10.30-13.00 ENGIN SIMULATION IN ENGINEERING Chair: Vladimír Janoušek, Brno Univ. of Technology, Brno, Czech Republic
ENGIN_01 Real Time 3D Simulation Tool for NC Sheet Metal Cutting and Punching Processes Aitor Moreno, Alvaro Segura, Harbil Arregui, Alvaro Ruiz de Infante and Natxo Canto
ENGIN 05

## 

## Wednesday, 6<sup>th</sup> June 2012

TOOLS_01 Cryogenic Helium Installation Simulation Model: Approaches to Implementation and Usage Shpakov Vladimir	101
ENGIN_07 Improving the Performances of an Electro-Hydraulic Servo Valve by an Additional Position Feedback	
Bogdan Mihalescu, Constantin Calinoiu, and Nicolae Vasiliu	105
ENGIN_03 Thermal Modeling of an Electric Motor used on Road Vehicle Powertrain Valerian Croitorescu, Jan Anthonis and Nicolae Vasiliu	223

## MEETING ROOM 13.00 - 13.15 CLOSING SESSION AND BEST PAPER AWARD

**BEST PAPER** 

Chair: Vladimír Janoušek, Brno University of Technology, Brno, Czech Republic

## SEE YOU ALL MAY 22-24, 2013 FOR ISC'2013 GHENT UNIVERSITY, GHENT, BELGIUM



Track proposals and tutorial proposals can be sent in by August 15<sup>th</sup>, 2012 to <a href="mailto:philippe.geril@eurosis.org">philippe.geril@eurosis.org</a>

## Other ISC Conferences from 2013 onwards

ISC'2014, June 2014, Högskolan Skövde, Skövde, Sweden

ISC'2015, June 2015, <u>St.Petersburg State Institute of Technology</u>, St.Petersburg, Russia

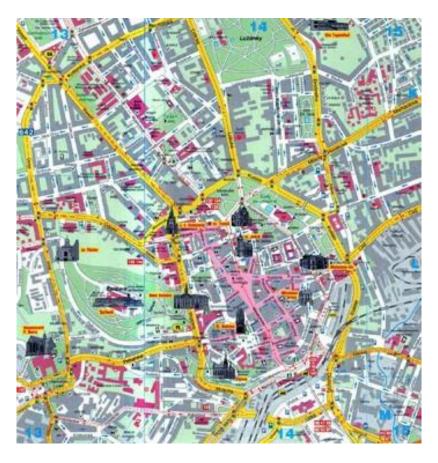
ISC'2016, June 2016, POLITECHNICA University of Bucharest, Bucharest, Romania If you are interested in hosting an ISC conference, just contact EUROSIS.

## **Conference Site Maps**



**Metro Map of Brno** 

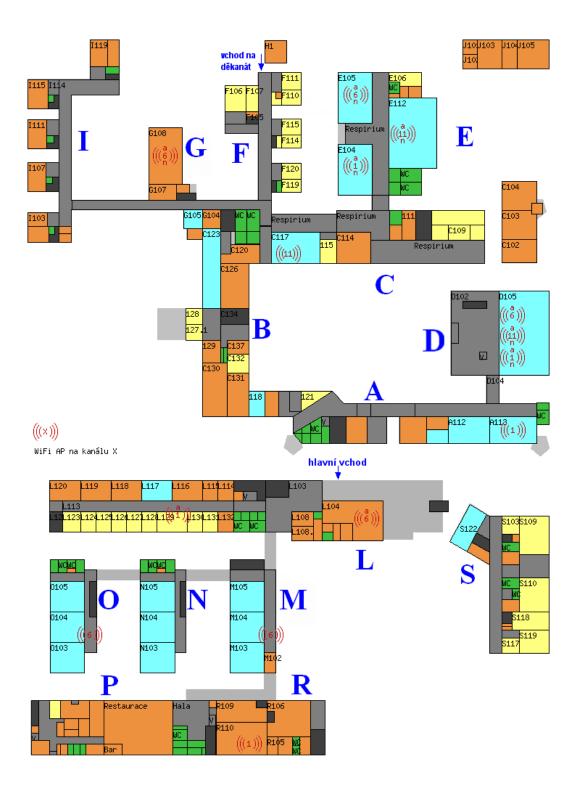
## **Conference Site Maps**



**Hotel Map** 

On the map above Nadrazni" or "Hlavni nadrazi" is near the central train/tram station. Near from here is "grandhotel". Slovan is on Lidicka street.(3 stops from Hlavni nadrazi).

## **Conference Site Maps**



The meeting room will be A113 (see above: room in blue on the right in wing A

## **NOTES**

## Conference Notes

## **ISC'2012 Registration Form**

Please legibly print or type and fill out completely. (Check appropriate boxes where necessary)

FIRS	T NAME	LAST NAME	M.I.		
СОМРА	NY OR AFFILIATION	I.	I.		
Mailing	address (tick one): [ ] HOME [ ] BUSINESS				
STREE	Г				
CITY					
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1. [ ] E	UROSIS member € 545 Member	· Number:		€	
2. []N	Members of Sponsor or Affiliate	Society € 545		€	
	lon-Member Participant € 555	•		€	
	Students, who are not authors be	ut who wish to attend the confere	ence. or ONE DAY	€	
	ICIPANTS pay: € 435		,	C	
	e registration fees include, one co nments, coffees and social progra				
	t participate in the conference dinr		in-Author Students		
5. [ ] C	Conference Dinner Ticket for Cor	mpanion € 45 [] Lunch Ticket fo	r Companion € 25/day	€	
6. [ ] E	extra Conference Proceedings €	50 Cash and Carry		€	
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TOTA	L AMOUNT DUE			€	
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[]2)					
[]3)	Or pay by <b>CREDIT CARD</b> and f	ill in the information below:			
Charge my (tick one): [ ]Visa [ ] Euro/Mastercard [ ] American Express [ ]Diners					
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	Authorizing Signature:				
	Print Signature in CAPITALS				

## eurosis

EUROSIS was borne out of discussions with the European Community to set up a new kind of Society, which would be project driven instead of driven by pure membership and conferences.

The aim of EUROSIS is to set up topic related Technical Committees which will link directly to European Projects in the field of computer simulation and related areas and to act as a knowledge pool for future European Networks of Excellence, like MOSAIC.

If you would like to receive more information about EUROSIS, please contact

Philippe Geril EUROSIS-ETI European Simulation Office Greenbridge Science Park Ghent University – Campus Ostend Wetenschapspark 1 Plassendale 1.

B- 8400 Ostend, Belgium
Tel: +32.59.255.330
Fax: +32.59.255.339

Email: Philippe.Geril@eurosis.org

Please send me info on EUROSIS:	
lame:	
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mail:	
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## The European Multidisciplinary Society for Modelling and Simulation

## **Application for Individual Membership**

**Full membership** in EUROSIS is open to all who have been professionally involved in computer simulation and modelling and meet certain minimum requirements. **Associate membership** is available to anyone who is interested in the technology of simulation and modelling or in applications of the computer arts and sciences, individual membership in EUROSIS is individual not organizational and fully portable on the event of change in employment, Dues for senior, full and associate members are €50 per year. **Student membership** is open to any person regularly enrolled on a full-time basis in an institution of higher learning and the dues are €25 per year. Transfers of membership to another individual may only be done with the expressed written permission of the original holder of the membership. **Membership is valid from the date of payment for a period of 1 year.** 

## Please indicate only one Technical Committee area of your main interest

[] TC Aerospace [] TC Agent Based Simulation [] TC AI Based Simulation [] TC Analytical and Numerical Modelling Techniques [] TC Automotive Systems [] TC Biology [] TC Business and Economics Simulation [] TC Chemical Engineering [] TC Complex Systems [] TC Computer Systems [] TC Concurrent Engineering [] TC Continuous Event Simulation Methodology [] TC Continuous Event Simulation Software Packages [] TC Continuous Event Simulation	Tools and Langua [] TC Discrete Ev [] TC Discrete Ev Packages [] TC Discrete Ev Languages [] TC Electronics Engineering [] TC Engineering [] TC Environmen [] TC Food Simul [] TC High Perfor [] TC Industrial E [] TC Logistics [] TC Manufactur [] TC Medicine [] TC Multibody S	vent Methodology vent Software vent Tools and and Electrical g and Control ntal Simulation lation mance Computing Design ring d Defence	[] TC Multimedia [] TC Operational Research [] TC Parallel and Distribute [] TC Robotics [] TC Simulation Analysis [] TC Simulation and AI in E [] TC Simulation and AI in Computer Games [] TC Simulation and Educat [] TC Socio-Economic Syste [] TC Sustainable Developm [] TC Telecommunications [] TC Textile Simulation [] TC Traffic and Transport [] TC Verification, Validation Accreditation [] TC Web Based Simulation [] TC Web Based Simulation	Business Games Commercial cion ms ent
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LAST FIRST	M.I	STUDENT MEM		[] € 25
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[] 1) Make payment by BANK TRANSFER to account N 5842218-81 , Swift Code: GEBABEBB: 001-5842218-8  Mailing address (tick one): [] HOME [] BUSINESS  CODE: BE36 0015 8422 1881, Account Holder: EUROS BNP Paribas Fortis Bank, Torhoutsesteenweg 195, Ostend, Belgium, MENTION YOUR NAME AND ADD A OF PAYMENT TO THIS FORM. Make sure the amount is deposited otherwise add €15 bank costs. [] 2) Or pay by CHEQUE and send it to Philippe Go STREET  EUROSIS-ETI, Greenbridge NV, Wetenschapspar Plassendale 1, B-8400 Ostend, Belgium. Make su				842218-81 IBAN :: EUROSIS Vzw. eg 195, B-8400 ID ADD A COPY ure the correct k costs. hilippe Geril, c/o nschapspark 1, Make sure the
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EMAIL		Authorizing Sign	nature	
DATE SIGNATURE		PRINT SIGN Card	IATURE if you are NOT the Ow	ner of the
Send Membership Application to: EUROSIS, European Simulation Office, Greenbridge NV, Wetenschapspark 1, B-8400 Ostend,				

Belgium
Tel: +32.59.255.330 Fax: +32.59.255.339 email: Philippe.Geril@eurosis.org