

Final Program



May 31- June 2, 2023

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ISC'2023 IS A POST COVID HYBRID EVENT

PRESENTATIONS DENOTED WITH **ONL** AT THE END OF THEIR PAPER CODE
ARE ONLINE PRESENTATIONS

The ISC'2023 final programme, gives information on how to reach the University of Malta, Valletta Campus, Valletta, but also gives you info on how to virtually attend the event for those who are unable to attend onsite.

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General Information

1. Conference Location

The Conference will be held at



[University of Malta - Valletta Campus](#)

Old University Building
Entrances: St Paul Street and
Merchants Street
Valletta, Malta

+356 2340 7511

sarah.sammuto@um.edu.mt

The Valletta Campus, which is housed in the Old University Building, dates back to the founding of the Collegium Melitense in 1592. It has two entrances, one on St Paul Street and another on Merchants Street. **The meeting room will be ROOM 101**

For those taking part virtually in the ISC'2023 Conference there will be an Online Meeting Room using the ZOOM software. (ZOOM information will be sent to all paying participants) ISC'2023 Registration will start on Wednesday May 31st, at 08.30 a.m. till 15.00 p.m. On Thursday, June 1st it will be from 08.30 a.m. to 15.00 p.m., and on Friday June 2nd, from 08.30 a.m. to 09.00 a.m.

2. Getting to Malta and the University of Malta - Valletta Campus

By Plane

When arriving by plane in Malta you will land at [Malta International Airport IATA: MLA, ICAO: LMML](#) which is located on the island of Malta, southwest of the Maltese capital [Valletta](#) in the town of Gudja, The airport serves as the main hub for [Air Malta](#) and Medavia besides being a base for [Ryanair](#) and its subsidiary [Malta Air](#).

The airport has a single passenger terminal. The Malta International Airport air terminal operations include general passenger services, and the operation of an extensive range of retail services at the airport, airside and landside shops, restaurants and other outlets. The airport offers one VIP lounge, the La Valette Club.

Bus and Shuttle from Airport

Malta International Airport is served also by several buses operated by private transportation groups and public transport operated by [Malta Public Transport](#).

General Information

Malta Public Transport buses serve the airport. A mixture of Express and local services are available, also.

There are four airport express services, X1, X2, X3 and X4. These routes make it easier for you to travel directly to and from the airport. Bus tickets are available for purchase from Malta International Airport at the below points and outlets. Additionally, tickets may be bought on all buses.

[Malta Transfer](#) is MIA's official hotel shuttle service. It offers convenient trips to and from your hotel in Malta or Gozo. More information on this [link](#).

Taxi from Airport

Taxi services between MIA and any destination in Malta are available 24 hours a day. Pre-paid tickets can be purchased at fixed rates from a booth in our Welcomers Hall. A regular taxi normally accommodates four persons, however the number of suitcases being carried must also be taken into consideration with regard to the space required in the vehicle. Taxi Rates to different destinations in Malta can be found [here](#).

Car from the airport

The airport is located 5 km (3.1 mi) southwest of the capital, Valletta.

By Bus and Shuttle

Malta's [Malta Public Transport](#), which uses buses (xarabank or karozza tal-linja) are the primary method of public transport, and operate mostly on routes to or from Valletta, with their central terminus just outside the city gates. The main roads of Malta from the southernmost point to the northernmost point are these: Triq Birżebbuġa in Birżebbuġa, Għar Dalam Road and Tal-Barrani Road in Żejtun, Santa Luċija Avenue in Paola, Aldo Moro Street (Trunk Road), 13 December Street and Ħamrun-Marsa Bypass in Marsa, Regional Road in Santa Venera/Msida/Gżira/San Ġwann, St Andrew's Road in Swieqi/Pembroke, Malta, Coast Road in Baħar iċ-Ċagħaq, Salina Road, Kennedy Drive, St. Paul's Bypass and Xemxija Hill in San Pawl il-Baħar, Mistra Hill, Wettinger Street (Mellieħa Bypass) and Marfa Road in Mellieħa.

By Taxi

Valletta is served by a fleet of [electric taxis](#) which transport riders from 10 points in Valletta to any destination in the city.

By Car

Traffic in Malta drives on the left. The main roads of Malta from the southernmost point to the northernmost point are these: Triq Birżebbuġa in Birżebbuġa, Għar Dalam Road and Tal-Barrani Road in Żejtun, Santa Luċija Avenue in Paola, Aldo Moro Street (Trunk Road), 13 December Street and Ħamrun-Marsa Bypass in Marsa, Regional Road in Santa Venera/Msida/Gżira/San Ġwann, St Andrew's Road in Swieqi/Pembroke,

General Information

Malta, Coast Road in Baħar iċ-Ċagħaq, Salina Road, Kennedy Drive, St. Paul's Bypass and Xemxija Hill in San Pawl il-Baħar, Mistra Hill, Wettinger Street (Mellieħa Bypass) and Marfa Road in Mellieħa.

On Foot

All chosen hotels in Valletta itself, are within easy walking distance of the conference site. (see [hotel page](#))

ALL MAPS ARE AT THE BACK OF THIS PROGRAMME

ISC'2023 VIRTUAL PARTICIPATION AND PRESENTATION. PAPERS DENOTED BY ONL AFTER THEIR CODE WILL BE ONLINE PRESENTATIONS.

As some speakers will present online, we are opening up a virtual environment for the ISC'2023 presentations using the ZOOM software: <https://zoom.us/>

You can download the software from: <https://zoom.us/download>

3. Conference Login info

Each registrant will receive a **name login** upon registration. **The login is personal and non-transferrable and can only be your name. Company logins are NOT allowed. Non-regular logins will be removed from the online meetings.**

4. 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.

5. 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.**

Extra conference dinner	€ 70
Extra lunch ticket	€ 35

General Information

6. Registration

The ISC'2023 Registration Desk will be open for information and registration in front of meeting ROOM 101.

Wednesday, May 31.....8.30 a.m. to 15.00 p.m.
Thursday, June 18.30 a.m. to 15.00 p. m.
Friday, June 2..... 8.30 a.m. to 9.00 a.m.

7. Conference Proceedings

Each electronic paid registrant will be provided with an electronic copy of the Conference Proceedings. Fully paid onsite participants will be provided with a printed copy of the Conference Proceedings. **This is NOT applicable to students who are not authors and who have not fully registered.** (Extra electronic or printed copies are available after **ISC'2023**)

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

Printed ISC'2023 Proceedings	€ 45 (plus 30% shipping costs if shipped)
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Other Proceedings can be ordered from the EUROSIS website.

8. Meeting Room

The **ISC'2023** meeting room is **ROOM 101. The Old University Building.** Directions to the room will be signposted.

9. Internet Connection

There will be WIFI at the conference site. Participants are informed that EDUROAM is also available at the site.

10. Need Help?

Please contact EUROSIS at the desk in front of the meeting room for your questions

11. Social Event and Lunches

All registrants are invited:

General Information


To the **Coffee breaks** and **Lunches** for 2 1/2 days which will be available on the same level as the ISC'2023 meeting room.

and the

Conference Dinner on Thursday the 1st of June at 19.00 p.m. at the **Rampila Restaurant**. (<https://www.rampila.com>)



Rampila
No.1 St.John's Cavallier Street
Valletta

 Tel: +356.2122.6625

12. Room Legend

The meeting room will be designated as **101**.

13. Best Paper Award

During the conference the papers, which were accepted as **extended** papers will be judged by the committee and conference participants in order to choose the best paper of the **ISC'2023** conference.

The best paper author of the conference receives a certificate and a free registration to any EUROSIS event held within 2 years after receiving the best paper award. This registration waiver is only VALID FOR 2 YEARS AFTER RECEIPT AND FOR 1 (ONE) PERSON. In case of multiple authors, one (1) author only can use the registration waiver.

14. 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

General Information

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** In case they chair a session featuring **extended papers**, then they are required to distribute and collect the reviews of that or those papers at the beginning and end of the session. If they have time they should also indicate in their papers the number of session participants.

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

CHECK OUT THE OTHER EUROSIS EVENTS ON OUR WEBSITE:

<http://www.eurosis.org>

WEDNESDAY, 31ST MAY 2023

08.30 - 15.00	REGISTRATION
09.00 - 09.15	OPENING SESSION – MEETING ROOM 101 WELCOME BY LIBERATO CAMILLERI GENERAL CONFERENCE CHAIR ISC'2023
09.15 - 10.00	KEYNOTE
	MEETING ROOM 101 KEYNOTE ADDRESS VIRTUAL AND EXTENDED REALITY INTERFACES TO MEET THE NEEDS OF GLOBAL AVIATION EDUCATION BY LORI J.BROWN
10.00 - 10.30	COFFEE BREAK
10.30 - 12.00	SESSION
	MEETING ROOM 101 HUMAN BEHAVIOUR SIMULATION
12.00 -13.00	LUNCH BREAK
13.00 - 15.00	TUTORIAL
	MEETING ROOM 101 VIRTUAL NUCLEAR SIMULATOR (ViNuS) IN EDUCATION BY WIM EERDEKENS AND JEROEN CEYSSENS
15.00 - 15.30	COFFEE BREAK
15.30 – 17.00	SESSION
	MEETING ROOM 101 SIMULATION OPTIMIZATION
17.00	FREE EVENING

THURSDAY, 1st JUNE 2023

08.30-15.00	REGISTRATION
09.00-10.00	KEYNOTE
	MEETING ROOM 101
	KEYNOTE ADDRESS RPGS, SIMULATIONS, AND THE HUMAN ELEMENT BY CHRISSEY MACKEY
10.00-10.30	COFFEE BREAK
10.30-12.00	SESSION
	MEETING ROOM 101
	VERIFICATION, ANALYSIS AND PREDICTIONS
12.00-13.00	LUNCH
13.00-14.00	TUTORIAL
	MEETING ROOM 101
	GENERALISED LINEAR MIXED MODELS BY LIBERATO CAMILLERI
14.00-15.00	SESSION
	MEETING ROOM 101
	SIMULATION IN ENGINEERING
15.00-15.30	COFFEE BREAK
15.30-17.00	SESSION
	MEETING ROOM 101
	LEAN PROCESS SUPPLY CHAIN SIMULATION
19.00-22.00	CONFERENCE DINNER AT THE RAMPILA RESTAURANT

FRIDAY, 2nd JUNE 2023

08.30-09.00	REGISTRATION
09.00-10.00	KEYNOTE
	MEETING ROOM 101
	KEYNOTE ADDRESS THE ROLE OF NUMERICAL MODELLING AND SIMULATIONS FOR PRESERVING ARCHITECTURAL HERITAGE BY MARCO FRANCESCO FUNARI
10.00-10.30	COFFEE BREAK
10.30-12.00	SESSION
	MEETING ROOM 101
	PEST AND DISASTER MANAGEMENT
12.00-12.15	SESSION
	MEETING ROOM 101
	BEST PAPER AWARD AND CLOSING SESSION

Wednesday, 31st May 2023

Registration

08.30 - 15.00

09.00 – 09.15

MEETING ROOM 101

WELCOME

Opening ISC'2023 and Welcome

Welcome Address

Professor Liberato Camilleri, Maths and Physics Building, Faculty of Science, University of Malta, Msida, Malta

ISC'2023, General Conference Chair

09.15 – 10.00

MEETING ROOM 101 -09.15-10.00

KEYNOTE

KEYNOTE SPEECH

Chair: Liberato Camilleri, University of Malta, Msida, Malta



KEY_02

[Virtual and Extended Reality Interfaces to Meet the Needs of Global Aviation Education](#)

Lori J. Brown, College of Aviation, Western Michigan University, USA

10.00 - 10.30

COFFEE BREAK

Welcome

Wednesday, 31st May 2023

10.30 – 12.00

MEETING ROOM 101 -10.30-12.00 **BEHAV**
HUMAN BEHAVIOUR SIMULATION
Chair: David Suda, University of Malta, Msida, Malta

MED_01
Meta-Analysis to Study the Promotion Effect of Protective Factors in Mental Health
Liberato Camilleri, Emma Scicluna and Joeline Camilleri..... **72**

SIM_VR_01
Student and Teacher Acceptance of a Virtual Reality Nuclear Simulation Learning Environment
Jeroen Ceyskens, Wim Eerdekens, Wouter Schroeyers and Fabian Di Fiore..... **77**

SIM_GAMB_01_ONL
Identifying Compulsive Gamblers Using Bayesian Networks
Mark A. Caruana and Christian A. Farrugia..... **67**

12.00 - 13.00
LUNCH BREAK

13.00 – 15.00

MEETING ROOM 101 -13.00-15.00 **TUT**
TUTORIAL
Chair: Liberato Camilleri, University of Malta, Msida, Malta



TUT_02
[Virtual Nuclear Simulator \(ViNuS\) in Education](#)
Wim Eerdekens and Jeroen Ceyskens, EDM, Hasselt University, Campus Diepenbeek, Diepenbeek, Belgium

Wednesday, 31st May 2023

15.00 - 15.30
COFFEE BREAK

15.30 – 17.00

MEETING ROOM 101 -15.30-17.00 **OPT**

SIMULATION OPTIMIZATION

Chair: Liberato Camilleri, University of Malta, Msida, Malta

COMP_SCI_01

DNA-Inspired Genetic Algorithm Modification

Gergana Mateeva, Dimitar Parvanov and Todor Balabanov 27

SIM_OP_02_ONL

Producing 185 different Products for Inventory using Statistical Optimization with Averaging

William Conley..... 15

SIM_OP_04_ONL

Multi Stage Monte Carlo Optimization applied to a large Nonlinear Problem with Five Range Sizes for the Variables

William Conley..... 21

17.00

FREE EVENING

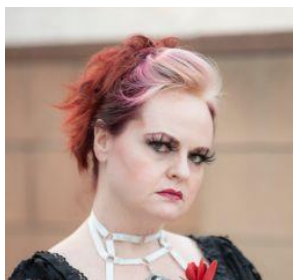
Thursday, 1st June 2023

Registration

08.30 - 15.00

09.00 – 10.00

MEETING ROOM 101 - 09.00-10.00	KEYNOTE
KEYNOTE SPEECH	
Chair: Liberato Camilleri, University of Malta, Msida, Malta	



KEY_02_ONL
RPGS, Simulations, and the Human Element
Chrissy Mackey.....5

10.00 - 10.30
COFFEE BREAK

10.30 – 12.00

MEETING ROOM 101 - 10.30-12.00	VERIF
VERIFICATION, ANALYSIS AND PREDICTIONS	
Chair: Mark Anthony Caruana, University of Malta, Msida, Malta	

VERIF_01
To which Extent are Simulation Research Papers related to the Real World?
– A Survey on the Use of Validation Methods
 Anne Vonderheide and Matthias Becker 35

SIM_RISK_AI_01
Risk Visualisation for Trustworthy Intelligent Contracts
Georgios Stathis, Athanasios Trantas, Giulia Biagioni
 and Jaap van den Herik..... 53

Thursday, 1st June 2023

SIM_AI_01 Adaptive Filtering and Deep Learning for Stock Price Predictions <u>Samwel Portelli</u> and Kenneth Scerri 58

12.00 - 13.00
LUNCH BREAK

13.00 – 14.00

MEETING ROOM 101 -13.00-14.00 **TUT**
TUTORIAL
Chair: Mark Anthony Caruana, University of Malta, Msida, Malta



TUT_01
[Generalised Linear Mixed Models](#)
Liberato Camilleri, Maths and Physics Building, Faculty of Science, University of Malta, Msida, Malta

14.00 – 15.00

MEETING ROOM 101 - 14.00-15.00 **ENG**
SIMULATION IN ENGINEERING
Chair: Mark Anthony Caruana, University of Malta, Msida, Malta

SIM_ENG_02
A Theoretical Modeling of Electro-Shear Behavior of Carbon Nanotubes Embedded Epoxy Nanocomposite
Sen Yang, Vijaya Chalivendrs and Yong K. Kim 131

SIM_TOOLS_01_ENERG
Nonparametric Kernel Regression to investigate Factors affecting Heating/Cooling Efficiency of Building
Liberato Camilleri and Martina Scicluna 139

Thursday, 1st June 2023

15.00 - 15.30
COFFEE BREAK

15.30 – 17.00

MEETING ROOM 101 - 15.30-17.00 **SUPPLY**

LEAN PROCESS SUPPLY CHAIN SIMULATION

Chair: Liberato Camilleri, University of Malta, Msida, Malta

SIM_ENG_01_ONL

Estimating the Impact of Waste Reduction through Simulation Case Study of a Car Maintenance Company

Vitor Anes, António Abreu, Ana Dias and João Calado 109

SIM_SUPPLY_01

Comparison of Collaborations based on Data Sharing in a Pharmaceutical Supply Chain

Mohammad Amin Yazdani, Daniel Roy and Sophie Hennequin..... 117

SIM_SUPPLY_03

Improvement of the Distribution of Petroleum Products in Nigeria: A Simulation-Based Approach

Olanrewaju Isaac Adenekan, Aimé Nyoungue and Sophie Hennequin 123

19.00 - 22.00
CONFERENCE DINNER

Conference Dinner on Thursday the 1st of June at 19.00 p.m. at **the Rampila Restaurant**. (<https://www.rampila.com>)



Rampila
No.1 St.John's Cavallier Street
Valletta
📞 Tel: +356.2122.6625

Friday, 2nd June 2023

Registration

08.30 - 09.00

09.00 – 10.00

MEETING ROOM 101 - 09.00-10.00

KEYNOTE

KEYNOTE SPEECH

Chair: Liberato Camilleri, University of Malta, Msida, Malta



KEY_01_ONL

[The Role of Numerical Modelling and Simulations for preserving Architectural Heritage](#)

Marco Francesco Funari, Department of Civil and Environmental Engineering, University of Surrey, Guildford, United Kingdom

10.00 - 10.30

COFFEE BREAK

10.30 – 12.00

MEETING ROOM - 10.30-12.00

MGMT

PEST AND DISASTER MANAGEMENT

Chair: Liberato Camilleri, University of Malta, Msida, Malta

SIM_RISK_04

Casualty Evacuation Resources in Disaster Situations: Does the Quantity really matter?

Mehdi Benhassine, Filip Van Utterbeeck, Ruben De Rouck, Michel Debacker, Ives Hubloue; John Quinn and Erwin Dhondt 101

METH_01

A Study of Insect Management Models in Agriculture

Matthias Becker and Kin-Woon Yeow 89

Sessions - Friday

Friday, 2nd June 2023

SIM_RISK_03_ONL

A Competent Emergency Information System for Natural Disasters

K. Papatheodosiou and C. Angeli..... 96

12.00 - 12.15

MEETING ROOM - 12.00-12.15

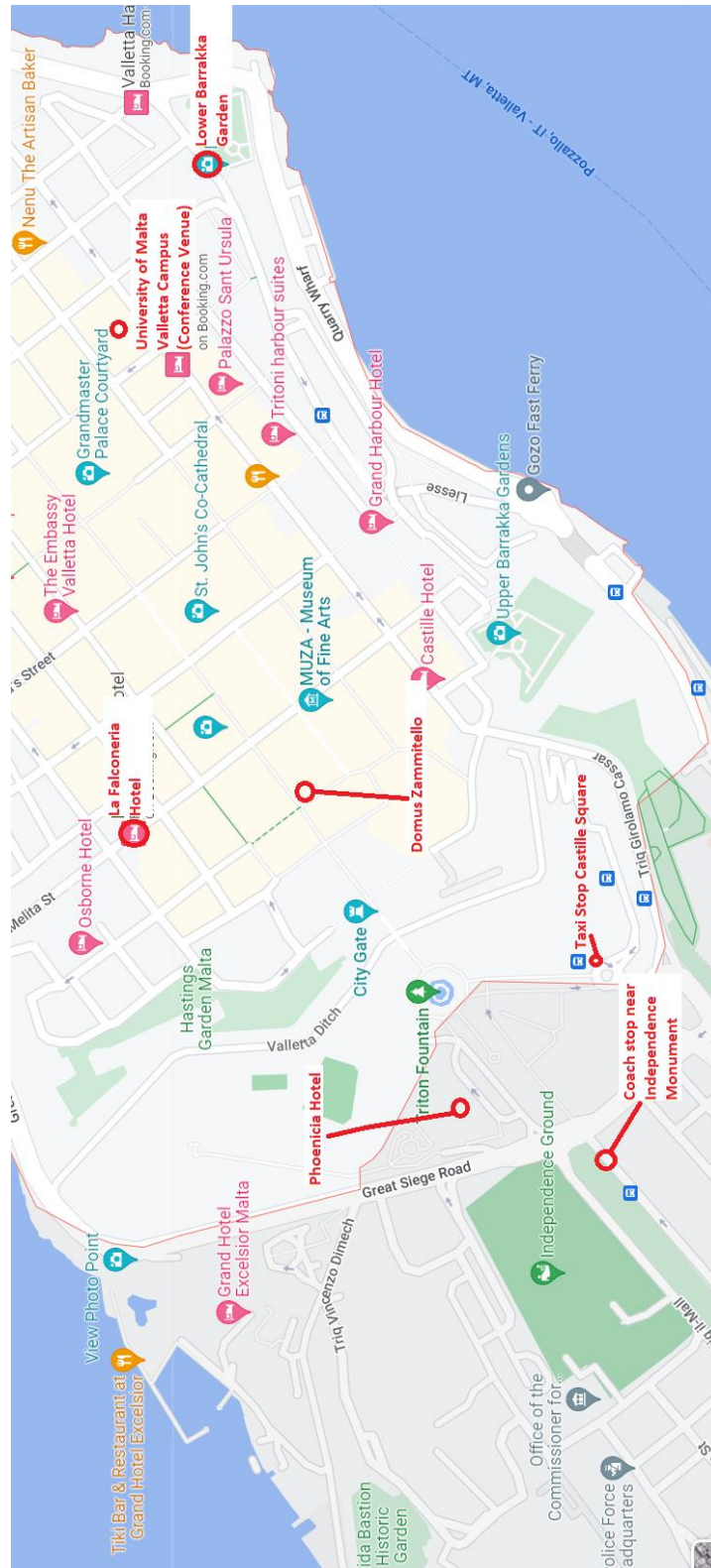
BEST PAPER

CLOSING SESSION AND BEST PAPER AWARD

Chairs: Liberato Camilleri, University of Malta, Msida, Malta and Philippe Geril, EUROSIS, Ostend, Belgium

Liberato Camilleri and Philippe Geril will announce the best paper for ISC'2023 and will end the event with some announcements related to ISC'2024

MAP



UNIVERSITY OF MALTA, VALLETTA CAMPUS

University of Malta Map

ISC'2024

SEE YOU ALL

**At ISC'2024
June, 2024**

LOCATION TO BE ANNOUNCED SOON

**Track proposals and tutorial proposals can be sent in
by September 15TH, 2023 to philippe.geril@eurosis.org**

**If you are interested in hosting a EUROSIS conference from 2024 onward, just
contact EUROSIS.**

NOTES

ISC'2023 at Conference Registration Form

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

FIRST NAME	LAST NAME	M.I.
COMPANY OR AFFILIATION		
Mailing address (tick one): <input type="checkbox"/> HOME <input type="checkbox"/> BUSINESS		
STREET		
CITY		
ZIPCODE	COUNTRY	
TELEPHONE	FAX	
E-MAIL		
DATE	SIGNATURE	
1. <input type="checkbox"/> EUROSIS member € 570 Member Number: _____		€ _____
2. <input type="checkbox"/> Members of Sponsor or Affiliate Society € 570		€ _____
3. <input type="checkbox"/> Non-Member Participant € 610		€ _____
4. <input type="checkbox"/> Students, <u>who are not authors</u> but who wish to attend the conference, or ONE DAY PARTICIPANTS pay: € 420		€ _____
(Above registration fees include, one copy of the PROCEEDINGS, all midday meals, cocktail, refreshments, coffees and social program,) One Day Participants and Non-Author Students cannot participate in the conference dinner. – NOT APPLICABLE		
5. <input type="checkbox"/> Conference Dinner Ticket for Companion € 70 <input type="checkbox"/> Lunch Ticket for Companion €35 /day		€ _____
6. <input type="checkbox"/> Extra Conference Proceedings € 45 Cash and Carry		€ _____
VAT Number if applicable: _____		
TOTAL AMOUNT DUE		€ _____
		€ _____
TOTAL AMOUNT REMITTED		€ _____

Pay by **CREDIT CARD** and fill in the information below:

Charge my (tick one): Visa Euro/Mastercard American Express

CARD NO: _____ : _____ : _____ : _____ EXP.DATE: ____ / ____

Authorizing Signature:

Print Signature in CAPITALS



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

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Plassendale 1.
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Fax:

Email: