



13th International Conference on
RELIABLE SOFTWARE TECHNOLOGIES
ADA-EUROPE 2008

FINAL PROGRAM



VENICE, ITALY, 16-20 JUNE 2008



Association for
Computing Machinery

<http://www.ada-europe.org/conference2008.html>



PRESENTATION

The 13th International Conference on Reliable Software Technologies – Ada-Europe 2008 will take place in Venice, Italy, on 16-20 June 2008. The conference has established itself as an international forum for providers, practitioners and researchers into reliable software technologies. Following tradition, the conference will span a full week, with at its centre from Tuesday to Thursday a three-day technical program accompanied by vendor exhibitions, and at either end on Monday and Friday a string of parallel tutorials.

Venice, the first venue of the conference series in Italy, is a marvel that words won't explain. You really want to wander its alleys and enjoy the experience of its floating on the water. We are truly fortunate at being able to host the conference at a 10-minute walk from piazza San Marco, the most renowned centre of Ve-

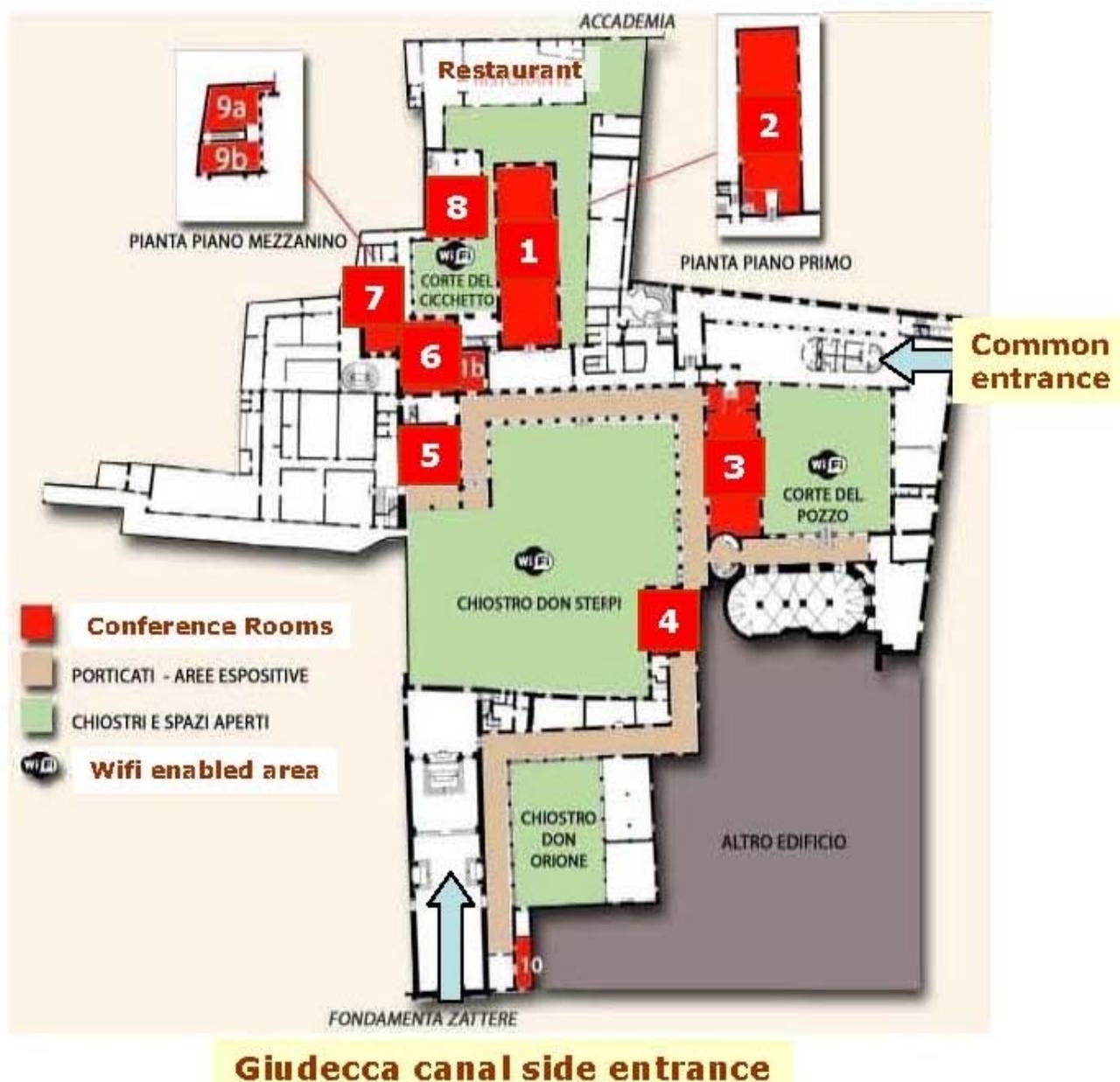
netian urban architecture, which still bears the signs of amazingly thriving cultural and commercial life when the Venetian republic was the gateway of Europe to the Far East. The conference centre, built on a fully-refurbished and modernly equipped restoration of a XVI-century convent, is located at the "Zattere" overlooking the Giudecca island, on the South-South-East angle of Venice, just behind the Accademia, which holds treasures of art.

Venice has the third busiest airport in Italy after Rome and Milan, directly connected to all capital cities in Europe, and to some major cities in the USA and Asia. The airport location offers a majestic view of the lagoon on many landing and take-off routes. Venice is connected to the airport via both water and land transport.

OVERVIEW OF THE WEEK

| | Morning | Late Morning | Early Afternoon | Afternoon |
|--|--|----------------------------------|--|---------------------------------------|
| Monday 16 June Tutorials | Jean-Pierre Rosen <i>AADL: Architecture Analysis and Design Language</i> | | | |
| | John Barnes <i>The Best of Ada 2005</i> | | Matthew Heaney <i>Object-Oriented Programming in Ada 2005</i> | |
| | Tullio Vardanega, Juan Antonio de la Puente <i>Preserving Model-Asserted Properties at Run Time for High-Integrity Systems</i> | | William Bail <i>Technical Basis of Model Driven Engineering</i> | |
| Tuesday 17 June Sessions & Exhibition | Keynote Talk Alberto Sangiovanni-Vincentelli <i>Embedded Software Design: Art or Science?</i> | Embedded Systems | Formal Verification | Applications of Petri Nets |
| | | | Vendor Session | Vendor Session |
| Wednesday 18 June Sessions & Exhibition | Keynote Talk Robert Dewar <i>Lost in Translation</i> | Industrial Presentations | Industrial Presentations | Industrial Presentations |
| | | | Ada and Education | Ada and Education |
| Tuesday 19 June Sessions & Exhibition | Keynote Talk Christian Queinnec <i>Three Ways to Improve SOA Reliability</i> | Language Technologies | Model-Driven Engineering | Real-Time Systems |
| | | | Concurrency | |
| Friday 20 June Tutorials | Cristina Vicente-Chicote, Diego Alonso-Cáceres <i>A Practical Introduction to Model-Driven Software Development using Eclipse</i> | | | |
| | Benjamin M. Brosgol <i>Languages for Safety-Critical Software: Issues and Assessment</i> | | Ricky Sward <i>Service-Oriented Architecture Concepts and Implementations</i> | |
| | William Bail <i>Verification Techniques for Dependable Systems</i> | | Frank Singhoff <i>Real-Time Scheduling Analysis of Ada Applications</i> | |

MAP OF THE CONFERENCE CENTER

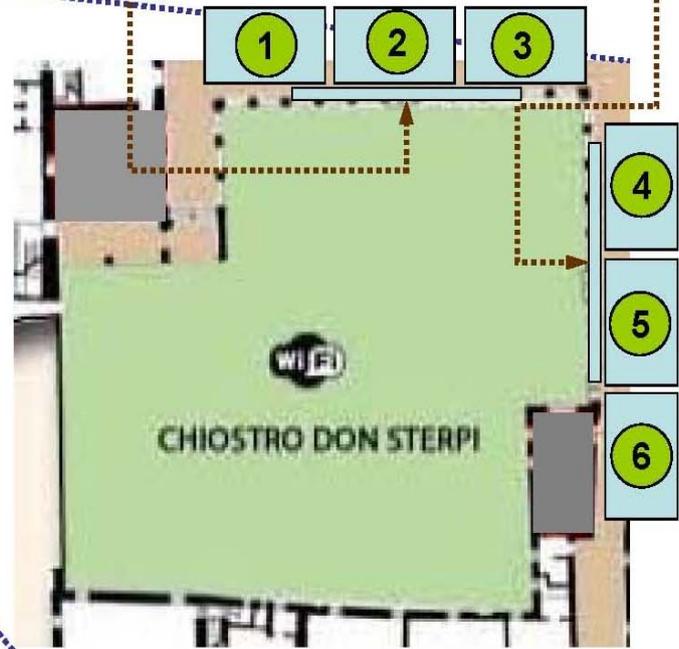
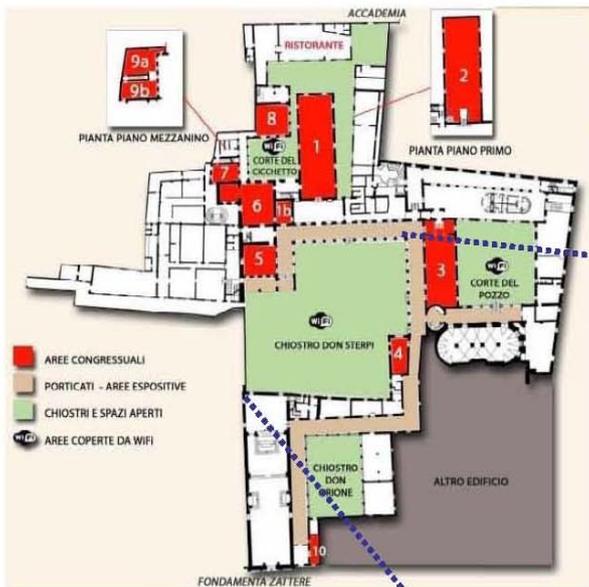


HOSTED EVENTS

| Date and Time | Event | Location |
|---------------------------------|------------------------------------|---------------------|
| Monday 16 June, 09:00 – 17:00 | WG9/PRG meeting* | Room 7 (Manin) |
| Monday 16 June, 18:00 – 21:00 | Ada-Europe Board meeting* | Room 8 (San Marco) |
| Tuesday 17 June, 18:00 – 19:00 | Ada-Europe General Assembly (open) | Room 1 (Aula Magna) |
| Thursday 19 June, 18:00 – 21:00 | Ada-Europe Board meeting* | Room 8 (San Marco) |
| Friday 20 June, 09:00 – 13:00 | WG9 meeting* | Room 8 (San Marco) |
| Friday 20 June, 14:00 – 17:00 | WG9/ARG meeting* | Room 8 (San Marco) |
| Saturday 21 June 09:00 – 17:00 | WG9/ARG meeting* | Room 8 (San Marco) |
| Sunday 22 June 09:00 – 13:00 | WG9/ARG meeting* | Room 8 (San Marco) |

*: Access restricted to members only.

MAP OF THE EXHIBITORS' AREA



Exhibitors



Aonix



RAPITA
SYSTEMS LTD



TUTORIAL SCHEDULE

| | | | | |
|-------------------|-----|-----------|---|-----------------------|
| Monday 16 June | T1 | Full day | Jean-Pierre Rosen <i>AADL: Architecture Analysis and Design Language</i> | Room 5 (Canova) |
| | T2 | Morning | John Barnes <i>The Best of Ada 2005</i> | Room 3 (Vivaldi) |
| | T3 | Afternoon | Matthew Heaney <i>Object-Oriented Programming in Ada 2005</i> | Room 3 (Vivaldi) |
| | T4 | Morning | Tullio Vardanega, Juan Antonio de la Puente <i>Preserving Model-Asserted Properties at Run Time for High-Integrity Systems</i> | Room 8 (San Marco) |
| | T5 | Afternoon | William Bail <i>Technical Basis of Model Driven Engineering</i> | Room 8 (San Marco) |
| Friday 20 June | T6 | Full day | Cristina Vicente-Chicote, Diego Alonso-Cáceres <i>A Practical Introduction to Model-Driven Software Development using Eclipse</i> | Room 7 (Manin) |
| | T7 | Morning | Benjamin Brosgol <i>Languages for Safety-Critical Software: Issues and Assessment</i> | Room 5 (Canova) |
| | T8 | Afternoon | Ricky Sward <i>Service-Oriented Architecture Concepts and Implementations</i> | Room 5 (Canova) |
| | T9 | Morning | William Bail <i>Verification Techniques for Dependable Systems</i> | Room 3 (Vivaldi) |
| | T10 | Afternoon | Frank Singhoff <i>Real-Time Scheduling Analysis of Ada Applications</i> | Room 3 (Vivaldi) |

Morning tutorial sessions will start at 9:30 and end at 13:00. Afternoon sessions will start at 14:30 and end at 18:00. Coffee breaks will be at 11:00 - 11:30 and at 16:00 - 16:30.

INVITED SPEAKERS

Three eminent keynote speakers have been selected to open each day of the core conference program:

- **Alberto Sangiovanni-Vincentelli** (University of California at Berkeley, USA), a most authoritative member of the embedded systems community, will deliver a talk entitled: “*Embedded Software Design: Art or Science?*”
- **Robert Dewar** (New York University, USA), a worldwide expert in programming technologies, will discuss where programming languages are expected to go next in a talk evocatively entitled: “*Lost in Translation*”
- **Christian Queinnec** (LIP6, Université Pierre et Marie Curie, Paris), a leading researcher in reliable software technologies, will explore the inner heart of the Service-Oriented Architecture in a talk entitled: “*Three Ways to Improve SOA Reliability*”.

EXHIBITION

The exhibition will open at the morning break on Tuesday and run continuously until the end of the afternoon break on Thursday. It takes place in the cloister of the conference centre just next to the meeting halls. The refreshments are served in the exhibition area. The breaks on Tuesday to Thursday span one hour to allow attendees comfortable time to visit the exhibition.

The exhibitors are: *AdaCore*; *Aonix*; *Ellidiss*; *Praxis High Integrity Systems*; *Rapita Systems*; *Telelogic*. Exhibitors will also deliver a presentation in the vendor session scheduled in the afternoon of Tuesday.



CONFERENCE SCHEDULE

| | Tuesday 17 June | Wednesday 18 June | Thursday 19 June |
|---------------|---|---|---|
| 9:00 – 9:30 | <i>Welcome and Opening Address</i> | Keynote Talk Lost in Translation <i>Robert Dewar</i> New York University, USA chair: Erhard Plödereder room 1 (Aula Magna) | Keynote Talk Three Ways to Improve SOA Reliability <i>Christian Queinnec</i> Université Pierre et Marie Curie, Paris, France chair: Fabrice Kordon room 1 (Aula Magna) |
| 9:30 – 10:00 | Keynote Talk Embedded Software Design: Art or Science? Alberto Sangiovanni-Vincentelli University of California at Berkeley, USA chair: Tullio Vardanega room 1 (Aula Magna) | Coffee & Exhibition | Coffee & Exhibition |
| 10:00 – 10:30 | | | |
| 10:30 – 11:00 | Coffee & Exhibition | Industrial Presentations chair: Luis Miguel Pinho room 1 (Aula Magna) | Language Technologies chair: Christian Queinnec room 1 (Aula Magna) |
| 11:00 – 11:30 | | | |
| 11:30 – 12:30 | Embedded Systems chair: Franck Singhoff room 1 (Aula Magna) A new Approach to Memory Partitioning in On-board Spacecraft Software, <i>S. Urueña, J.A. Pulido, J. López, J. Zamorano, J.A. de la Puente</i> Design and Development of Component-based Embedded Systems for Automotive Applications, <i>M. Di Natale</i> | A Discussion on the U.S. Federal Aviation Administration's Use of and Experiences with Ada, Including the Current Modernization Efforts, <i>J. O'Leary, A. Srivastava</i> Experiences Developing the Flight Services Component of the ERAM System, <i>H. Ausden</i> Challenges in Implementing a Ravenscar Runtime in an ARINC 653 Partition, <i>J.-P. Fauche, T. Grossman</i> Binary Data Comparison Automation, <i>M. Mark</i> | A Comparison of the Object-Oriented Features of Ada 2005 and Java, <i>B. Brosgol</i> A Framework for CFG-based Static Program Analysis of Ada Programs, <i>R. Fechete, G. Kienesberger, J. Blieberger</i> A Type Safe Database Interface, <i>F. Villoing, E. Briot</i> |
| 12:30 – 14:00 | Lunch & Exhibition | Lunch & Exhibition | Lunch & Exhibition |

| | Tuesday 17 June | | Wednesday 18 June | | Thursday 19 June | |
|---|---|--|--|--|--|--|
| 14:00 - 15:30 | Formal Verification chair: Laure Petrucci room 1 (Aula Magna) | Vendor Session See full details on page 8 | Industrial Presentations chair: Dirk Craeynest room 1 (Aula Magna) | Ada and Education chair: Jorge Real room 2 (sala Goldoni) | Model-Driven Engineering chair: Marco Di Natale room 1 (Aula Magna) | Concurrency chair: Claude Keiser room 2 (sala Goldoni) |
| | Operational Semantics of Ada Ravenscar, <i>I. Hamid, E. Najm</i> | | On the Separation of Functional and Real-Time Constraints, and Object Orientation for Embedded Applications, <i>M. Le Coroller, G. Garcia</i> | A Rational Approach to Software Engineering Education or: Java Considered Harmful, <i>E. Schonberg, R. Dewar</i> | StateML+: From Graphical State Machine Models to Thread-Safe Ada Code, <i>D. Alonso, C. Vicente-Chicote, J.A. Pastor, B. Álvarez</i> | Increasing Confidence in Concurrent Software Through Architectural Analysis, <i>R.G. Pettit</i> |
| | On the Timed Automata-based Verification of Ravenscar Systems, <i>I. Ober, N. Halbwachs</i> | | Advanced Real-Time Analysis in ASSERT – Application on Satellite Central Flight Software, <i>D. Thomas, J.-P. Blanquart, M. Panunzio</i> | Ada and Software Engineering Education: One Professor's Experiences, <i>J.W. McCormick</i> | Experience in the Integration of Heterogeneous Models in the Model-driven Engineering of High-Integrity Systems, <i>M. Bordin, T. Tsiodras, M. Perrotin</i> | Fast Scheduling of Distributable Real-Time Threads with Assured End-to-End Timeliness, <i>S. Fahmy, B. Ravindran, D. Jensen</i> |
| | Practical, Fast and Simple Concurrent FIFO Queues Using Single Word Synchronization Primitives, <i>C. Evéquo</i> | Porting Naval Command & Control Systems to Ada 2005, <i>J. Cousins</i> | Is Ada Education Important?, <i>J.-P. Rosen</i> | A Systematic Approach to Automatically Generate Multiple Semantically Equivalent Program Versions, <i>S.H.K. Narayanan, M. Kandemir</i> | RCanalyser: A Flexible Framework for the Detection of Data Races in Parallel Programs, <i>A. Raza, G. Vogel</i> | |
| 15:30 - 16:30 | Coffee & Exhibition | | Coffee & Exhibition | | Coffee & Exhibition | |
| 16:30 - 18:00 | Applications of Petri Nets chair: Elie Najim room 1 (Aula Magna) | Vendor Session See full details on page 8 | Industrial Presentations (continued) | Ada and Education (continued) | Real-Time Systems chair: Alok Srivastava room 1 (Aula Magna) | |
| | A Modelling Approach with Coloured Petri Nets, <i>C. Choppy, L. Petrucci, G. Reggio</i> | | A Comparison of Industrial Coding Rules, <i>J.-P. Rosen</i> | Use of Ada in a Student CubeSat Project, <i>C. Brandon</i> | Can We Increase Usability of Real-Time Scheduling Theory? The Cheddar Project, <i>F. Singhoff, A. Plantec, P. Dissaux</i> | |
| | A Tailored V-Model Exploiting the Theory of Preemptive Time Petri Nets, <i>L. Carnevali, L. Grassi, E. Vicario</i> | | Growing a Tree that Lives Forever: Automatic Storage Management and Persistence of Complex Data Structures, <i>S.T. Taft</i> | Panel Discussion | An Ada 2005 Technology for Distributed and Real-Time Component-based Applications, <i>P. Lopez Martinez, J.M. Drake, P. Pacheco, J.L. Medina</i> | |
| Concurrent Program Metrics Drawn by QUASAR Numbers, <i>C. Kaiser, C. Pajault, J.-F. Pradat-Peyre</i> | Exceptionally Safe, <i>A. Charlet, C. Comar, F. Gasperoni</i> | Real Time Distribution Middleware from the Ada Perspective, <i>H. Pérez, J. Gutiérrez, D. Sangorrín M. González Harbour</i> | | | | |
| 18:00 - 19:00 | Ada-Europe General Assembly (Aula Magna) | | | | Closing Address and Best-Presentation Award | |
| From 19:00 | Welcome Reception | | Excursion, Banquet and Best-Paper Award | | | |

VENDOR SESSIONS

| Tuesday 17 June chair: Ahlan Marriott room 2 (sala Goldoni) | | |
|--|--|-----------------------------------|
| Time Slot | Title, Author | Company |
| 14:00 – 14:30 | SPARK Technical Update <i>Rod Chapman</i> | Praxis High Integrity Systems Ltd |
| 14:30 – 15:00 | Optimization of Real-Time Systems: Why Worst Case and Average Case Optimizations are Different <i>Ian Broster</i> | Rapita Systems Ltd |
| 15:00 – 15:30 | An Update on Ellidiss Modeling Tools and the ‘New World’ of AADL <i>Tony Elliston</i> | Ellidiss Software |
| Coffee & Exhibition | | |
| 16:30 – 17:00 | GNAT Pro, at the heart of multi-language development <i>Michaël Friess</i> | AdaCore |
| 17:00 – 17:30 | Open Source, Proprietary and Third Party Software: The AonixADT/Hibachi Experience <i>Tom Grosman</i> | Aonix SA |

ABOUT THE CONFERENCE CENTER

The conference takes place at the Centro Culturale Don Orione Artigianelli, at Zattere Dorsoduro 909/A, at the South end of Venice, at some 15 minutes of leisurely walk from Piazza San Marco, perhaps the most renowned spot of the city (though many others deserve to be known and visited). The Centro Culturale (<http://www.donorione-venezia.it/>) has been built on the restored remnants of the historical site of a former convent, founded at the end of the XIV century. The Conference facilities (see map on page 3) still overlook the old structure, all around a beautiful cloister. The historical entrance of the Centro (see below) faces the Zattere.



In addition to the conference facilities, which in the week of June 16-20 will be completely monopolized by the Ada-Europe 2008 conference, the Centro Culturale offers comfortable lodging at competitive rates. An independent restaurant is also located next to the Centro Culturale, which will serve lunch to conference attendees throughout the week.

Some areas of the Centro Culturale are Wifi enabled (see the map on page 3 for details). Wifi access will be at cost and upon personal registration: please apply to the reception desk of the Centro Culturale for purchasing your access. Wifi access is limited to the areas indicated. Lodges at the Centro Culturale are not wired.

The Centro Culturale can be easily reached by waterbus lines 1 and 2 (direction Vallarosso), which traverse the Grand Canal with stops at the Railway Station (“Ferrovia”) and at Zattere, some 50 meters to your right-hand side from the entrance to the Centro when the get off the water bus. For details on the applicable fares and timetables please refer to http://www.actv.it/english/navigazione.php?pagina=tariffe_vaporetto.

The water bus stop at the Zattere is also connected to the airport via the Alilaguna service (<http://www.alilaguna.it/>) with a journey time of approximately 80 minutes.

SOCIAL PROGRAM

Welcome Reception

The social program of the conference will open with a welcome reception at Palazzo Cavalli-Franchetti, a three-storied patrician villa on the Grand Canal, which hosts the historic premise of the regional institute for science, literature and art. The reception will be accompanied by musical entertainment offered by distinguished members of the conference community.



Participants will also have the opportunity to enjoy a visit to the running art exhibition on a private collection of Macchiaoli paintings.



Additional tickets

Additional tickets for accompanying persons for access to the welcome reception on Tuesday 17 and/or to the excursion and banquet on Wednesday 18 can be purchased on site at the registration desk.

Logistics

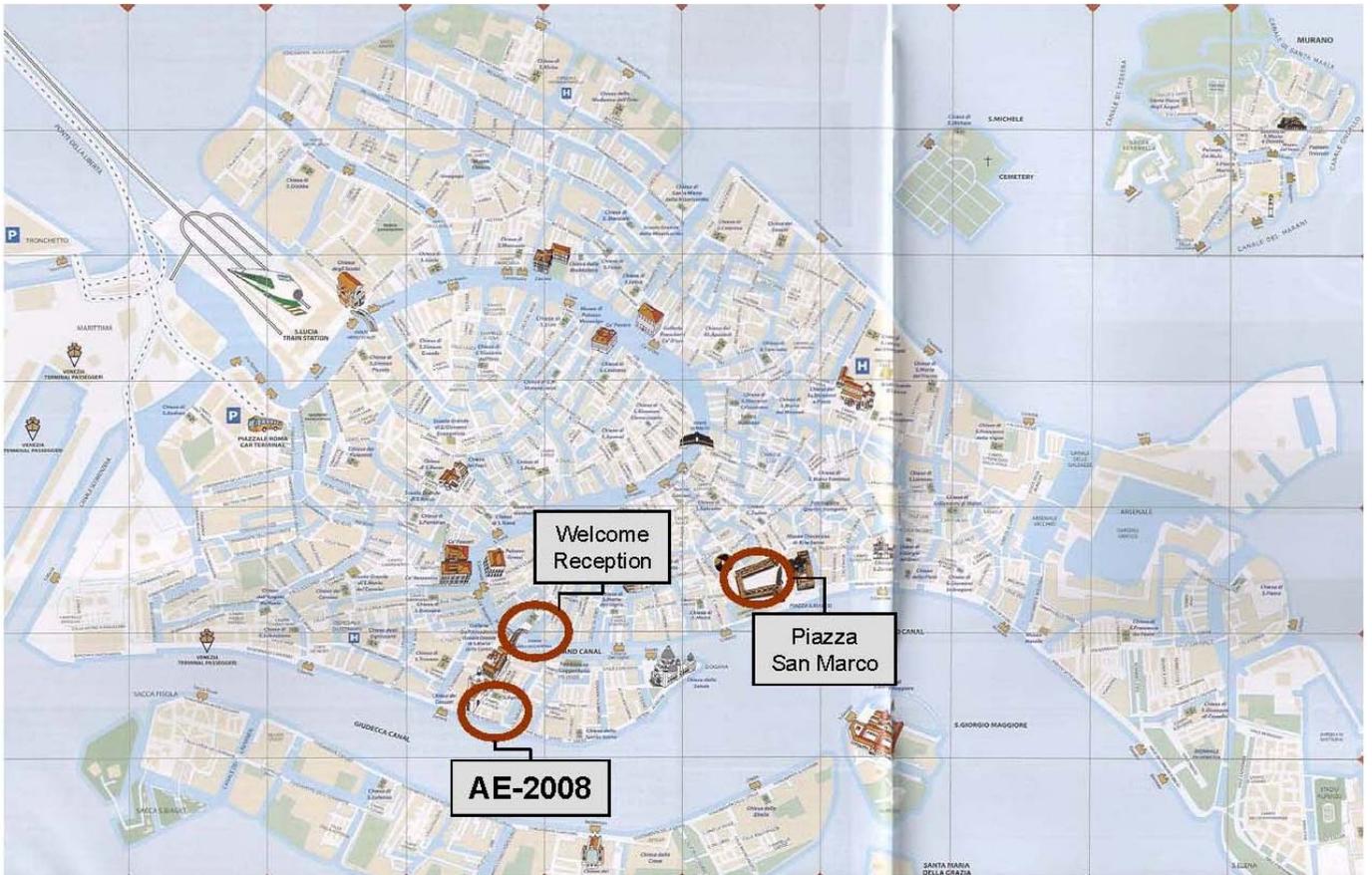
The details on where participants should meet to be escorted to both events will be provided directly on site.

Conference Banquet

The conference banquet will take place on the island of Torcello, the farthest island of the lagoon, just past picturesque Burano. The Torcello island which used to be vastly populated at the time of the Venetian republic has lost almost all of its population but kept its beauty and its natural, cultural and historical attraction. Participants will ride on a private boat along the Grand Canal to the renowned “Osteria Ponte del Diavolo” restaurant at Torcello. The journey will be accompanied by appetizers, musical entertainment, and the spectacular scenery of the lagoon itself viewed first at sunset and then in the fullness of night on the return leg.



MAP OF VENICE AND ITS LAGOON



Conference Banquet



PROGRAM COMMITTEE

Nabil Abdennadher, University of Applied Sciences, Switzerland
 Alejandro Alonso, Universidad Politécnica de Madrid, Spain
 Johann Blieberger, Technische Universität Wien, Austria
 Maarten Boasson, University of Amsterdam, The Netherlands
 Bernd Burgstaller, Yonsei University, Korea
 Dirk Craeynest, Aubay Belgium & K.U.Leuven, Belgium
 Alfons Crespo, Universidad Politécnica de Valencia, Spain
 Juan A. de la Puente, Universidad Politécnica de Madrid, Spain
 Raymond Devillers, Université Libre de Bruxelles, Belgium
 Michael González Harbour, Universidad de Cantabria, Spain
 José Javier Gutiérrez, Universidad de Cantabria, Spain
 Serge Haddad, Université Paris-Dauphine, France
 Andrew Hately, Eurocontrol CRDS, Hungary
 Jérôme Hugues, Telecom Paris, France
 Günter Hommel, Technischen Universität Berlin, Germany
 Hubert Keller, Institut für Angewandte Informatik, Germany
 Yvon Kermarrec, ENST Bretagne, France
 Fabrice Kordon, Université Pierre & Marie Curie, France
 Albert Llemosí, Universitat de les Illes Balears, Spain
 Kristina Lundqvist, MIT, USA
 Franco Mazzanti, ISTI-CNR Pisa, Italy
 John McCormick, University of Northern Iowa, USA
 Stephen Michell, Maurya Software, Canada
 Javier Miranda, Universidad Las Palmas de Gran Canaria, Spain
 Daniel Moldt, University of Hamburg, Germany
 Laurent Pautet, Telecom Paris, France
 Laure Petrucci, LIPN, Université Paris 13, France
 Luís Miguel Pinho, Polytechnic Institute of Porto, Portugal
 Erhard Plödereder, Universität Stuttgart, Germany
 Jorge Real, Universidad Politécnica de Valencia, Spain
 Alexander Romanovsky, University of Newcastle upon Tyne, UK
 Jean-Pierre Rosen, Adalog, France
 José Ruiz, AdaCore, France
 Lionel Seinturier, Université de Lille, France
 Man-Tak Shing, Naval Postgraduate School, USA
 Alok Srivastava, Northrop Grumman, USA
 Tullio Vardanega, Università di Padova, Italy
 Andy Wellings, University of York, UK
 Jürgen Winkler, Friedrich-Schiller-Universität, Germany
 Luigi Zaffalon, University of Applied Sciences, W. Switzerland

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 Rei Strähle, Saab Systems, Sweden
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CONFINDUSTRIA PADOVA

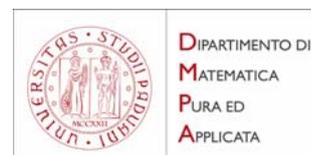


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The organizers are grateful to the exhibitors and sponsors of the conference



Praxis High Integrity Systems



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APPLICATA



Springer publishes the proceedings of the conference as volume 5026 in Lecture Notes in Computer Science

