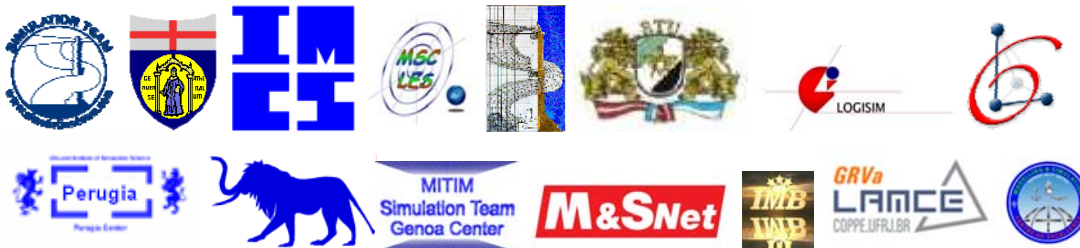# The International Workshop on Applied Modelling and Simulation, WAMS 2012

co-located with NATO CAX Forum 2012

September 24-25, 2012
Ergife Palace Hotel - Rome, Italy

General Co-Chairs: Agostino Bruzzone, MITIM - Genoa Center, University of Genoa, Italy
Erdal Cayirci, University of Stavanger, Norway

Program-Chair: Wayne Buck, HQ Supreme Allied Commander Transformation, NATO

CAX Forum: CAX Forum Sessions are open to CAX Forum Attendees and also to WAMS Attendees, if not classified contents are presented

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WAMS REGISTRATION DESK - OPENING HOURS
Monday Sept 24, 2012: Morning 8.30 – 12:30 / Afternoon 14.30 – 16.30
Tuesday Sept 25, 2012: Morning 8.30 – 12:30 / Afternoon 14.30 – 16.30

COFFEE BREAKS
Monday Sept, 24 2012: Afternoon 16:00 – 16:30
Tuesday Sept, 25 2012: Morning 10:30 – 11:00 / Afternoon 15:30 – 16:00

LUNCHEONS
Monday Sept, 24 2012: 13:00 – 14:30
Tuesday Sept, 25 2012: 12:30 – 14:00

SOCIAL EVENTS
Monday 24, September 2012, 18:45-19:30, Room Leptis Magna IV
Introduction to Catacombs of San Callisto Guided Tour (Open to CAX Forum 2012 & WAMS participants)
Monday 24, September 2012, 19:30-21:30, at Ergife Palace Hotel Pool
WAMS 2012 Ice-Breaker

Monday 24, September 2012

WAMS and NATO CAX Forum Opening Ceremony, 09:30-10:10, Room: Leptis Magna I/II
Plenary Session - All attendees invited
- **9.30-9.40: ITA MOD address** (*BG G. GIMONDO – ITA MOD*)
- **9.40-9.50: Welcome address NATO M&S COE** (*Col. F. MASTROROSA*)
- **9.50-10:00: Welcome address WAMS** (*Prof. A. BRUZZONE*)
- **10:00-10:10: Welcome address NATO CAX Forum** (*Prof. E. CAYIRCI*)

WAMS and NATO CAX Forum Opening Ceremony – Keynote Speakers - 10:10-12:40, Room: Leptis Magna I/II
Plenary Session - All attendees invited
- **10:10 – 10:35 - Innovative approach to CAX design –** Dr. C. S. OLIVIERO, Directorate of Land Synthetic Environments, Land Force Doctrine & Training Systems, CAN
- **10:35 – 11:15 - Simulation everywhere** - Dr. G. WAINER, Dept. of Systems and Computer Engineering, Carleton University, CAN
- **11:15 – 11:40 - NATO's Future Modelling and Simulation Community of Interest** - Capt. (N) James BYERLY, HQ SACT CAPDEV CE OPEX BH
- **11:40 – 12:05 - JFTC - Training of NCS, NFS and National Forces** - BG Jaromir ZUNA, COS JFTC
- **12:05 – 12.30 - Joint Training Environment for Joint Force 2020 –** Mr. Thomas IRWIN, Assistant Deputy Director Synchronization & Integration - US Joint Staff J7
- **12:30 – 12.35 - National Anthem and Hymn to the Fallen by "Granatieri di Sardegna" Brigade Band**

12:35 – 12:55 - Photo Opportunity (Plenary)

Presentation Sessions

SESSION: Simulation Applications, Techniques and Methodologies - Session I, 14:30:00-16:00:00, WAMS Room
Chair: Francesco Longo, University of Calabria, Italy

- **Simulation of nonlinear adaptive control of a tubular chemical reactor**
  Petr Dostal, Jiri Vojtesek, Vladimir Bobal
- **Matlab toolbox for CAD of self-tuning control of time-delay processes**
  Vladimir Bobal, Petr Chalupa, Jakub Novak, Petr Dostal
- **Probabilistic model for an economy coming through integration transformations**
  Peter Kamyshanov, Alexander Kamyshanov
- **Analysis of a diagnostic radiology department with different patient flows using different data sources**
  Francesco Boenzi, Giovanni Mummolo, Jacobus E. Rooda

SESSION: Special Joint Session WASM/CAX Forum on Cyber Defence, Room Leptis Magna IV
Chair: Lt.Col. Stefano Giacomozzi (NATO M&S COE)

- Training operational and higher level headquarters for decision making under cyber attack (WAMS/ CAX FORUM - Speakers- Prof. Agostino BRUZZONE/ Prof. Erdal CAYIRCI)
- Evaluation of Delay/Disruptive Tolerant network (DTN) solutions in networks under intentional attack (Genoa University - NATO M&S COE/ - Speakers -Prof. Mario MARCHESE - Dr. Marco CELLO - Lt. (N) Alessandro CIGNONI)

- Exercising Cyber defence in NATO and existing simulation representation during collective exercises (NCIA - Speaker - Mr. Tom KOOLEN - NCIA)

SESSION: Simulation Applications, Techniques and Methodologies - Session II, 16:30:00-18:00:00, WAMS Room
Chair: Marina Massei, Liophant Simulation, Italy

- **Increasing efficiency of large university dining hall usage**
  Xiangwan Ma, Alex Beeker, Mike McCloskey, David Modawer, Edward Williams
- **Workforce modelling tools used by the Canadian forces**
  Meagan Boileau
- **A methodology for engaging modeling and simulation to assess a corollary problem to the obesity epidemic**
  John Sokolowski, Catherine Banks, Saikou Diallo, Jose Padilla, Christopher Lynch
- **Modelling and robust control design of a semi-batch reactor**
  František Gazdoš

Tuesday 25, September 2012

SESSION: Simulation Applications, Techniques and Methodologies - Session III, 09:00:00-10:30:00, WAMS Room
Chair: Stefano Saetta, University of Perugia, Italy

- **Use of nonlinear theory in adaptive control of chemical reactor**
  Jiri Vojtesek, Petr Dostal
- **UML modelling and code generation for agent-based, discrete events simulation**
  Giovanni A. Cignoni, Stefano Paci
- **Transfer and generalisation of financial risk metrics to discrete event simulation**
  Arne Koors, Bernd Page
- **Business process simulation with IYOPRO and DESMO-J**
  Philip Joschko, Johannes Haan, Tim Janz, Bernd Page
- **Feasibility study of different cleaning techniques in the abatement of VOC emissions from aerobic and anaerobic waste water treatment in mechanical pulping**
  Stefano Saetta, Lorenzo Tiacci, Markku Tapola, Sara Hihnala

SESSION: M&S for Systems Reliability Analysis - Session I, 11:00:00-12:30:00, WAMS Room
Chair: Alfredo Garro, University of Calabria, Italy

- **Evaluation and modeling the mechanical damage to COWPEA seeds under successive impact loadings**
  Feizollah Shahbazi, Ali Dowlatshah, Saman Valizadeh
- **Experimenting the RAMSAS method in the reliability analysis of an Attitude Determination and Control System (ADCS)**
  Alfredo Garro, Johannes Groß, Marius Riestenpatt gen. Richter, Andrea Tundis
- **An integrated toolchain for model based functional safety analysis**
  Muhammed Zoheb Hossain, Olena Rogovchenko, Mattias Nyberg, Peter Fritzson
- **Risks analysis for assessing safety in railway tunnel through behavior- based safety strategy**
  Fabio De Felice, Antonella Petrillo

SESSION: Advances and Challenges in Biomathematics and Bioinformatics – Session I, 14:00:00-15:30:00, WAMS Room
Chair: Giuseppe Pontrelli, IAC-CNR, Ialy

- **Two-phase mass release in arterial drug-eluting stents**
  Giuseppe Pontrelli, Andrea Di Mascio, Filippo deMonte
- **Modelling elastic walls in lattice Boltzmann simulations for applications in haemodynamics**
  Xenia Descovich, Giuseppe Pontrelli, Simone Melchionna, Sauro Succi, Manfred Bammer
- **Feed forward neural network and simulation of filter adaptation by DAPHNIA**
  Tibor Kmet, Maria Kmetova

SESSION: Decision Support Systems – Session I, 16:00:00-17:30:00, WAMS Room
Chair: Agostino Bruzzone, University of Genoa, Italy

- **Modelling knowledge processes in health care organisations**
  Lars Rölker-Denker, Andreas Hein
- **Modeling and decision support system to determine when to impose seasonal load restriction (SLR)**
  Scott O'Connor, Ramprasad Balasubramanian, Marguerite Zarrillo, Heather Miller, Honggang Wang
- **PULSAR - decision system for integrated ship coordination**
  F. Perra, G. Bertolotto, G. Ferraris, L. Sebastiani, S. Poggi, L. Barbucci, A.G. Bruzzone, A. Tremori
- **Simulation of multi coalition joint operations involving human modelling**
  Agostino Bruzzone, Alberto Tremori, Marina Massei, Francesco Longo, Letizia Nicoletti, Simonluca Poggi
- **LVC simulation and augmented reality techniques within a virtual operation center framework**
  Marco Biagini, Bruce Joy

Wednesday 26, September 2012

Special Joint Session WASM/CAX Forum, 17:30 – 18:00, Leptis Magna IV
Chair: Agostino Bruzzone, University of Genoa, Italy

- **SMACKDOWN Demo**

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