

PROGRAM

updated June 9, 2010

ROOM PLAN

Legenda
Aule e strutture di appartenenza

Magna I = Aula Magna, Ingegneria
Magna A = Aula Magna, Architettura
A = Aula A, Architettura
B = Aula B, Architettura
C = Aula C, Architettura
Scherma = Aula della Scherma, Architettura
Crociere = Aula delle Crociere, Architettura
Officina = Aula Officina, Architettura
Mura = Sala delle Mura, Ghetto

Monday, June 21

h v	aula>	Magna I	Magna A	A	B	C	Scherma	Crociere	Officina	Mura
9:00-10:00		Opening Ceremony								
10:30-12:30		Plenary Session								
14:30-16:30			MSP03	MSP41	MSP19	MSP10	MSP38	MSP23	MSP09	MSP36
17:00-19:00			MSP03	MSP12/Y	MSP19	MSP10	MSP47-I	MSP23	MSP09	MSP36

Tuesday, June 22

h v	aula>	Magna I	Magna A	A	B	C	Scherma	Crociere	Officina	Mura
9:00-11:00			Plenary Session							
11:30-13:30			MSP02	MSP47 - II	MSP08 - I	MSP18	MSP13-I	MSP26 - I	MSP28	MSP25
15:00-17:00			MSP21	MSP01 - I	MSP14	MSP39	MSP24	MSP33	MSP37	MSP05
17:30-19:30			MSP21	MSP01 - I	MSP14	MSP39	MSP24	MSP33	MSP37	MSP05

Wednesday, June 23

h v	<i>Magna I</i>	<i>Magna A</i>	<i>A</i>	<i>B</i>	<i>C</i>	<i>Sberma</i>	<i>Crociere</i>	<i>Officina</i>	<i>Mura</i>
9:00-11:00		MSP48	MSP20	MSP08 - II	MSP17	MSP13 - II	MSP26 - II	MSP31/Y	
11:30-12:30		Round Table							
12:30-13:00		Premio Sileri 2008 Lecture							

Thursday, June 24

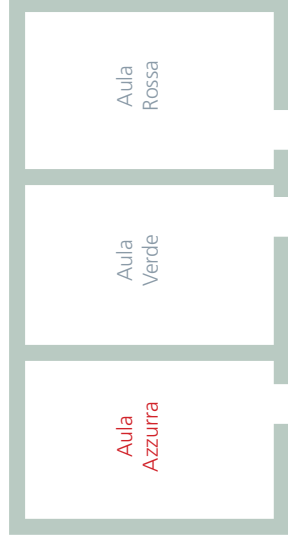
h v	<i>Magna I</i>	<i>Magna A</i>	<i>A</i>	<i>B</i>	<i>C</i>	<i>Sberma</i>	<i>Crociere</i>	<i>Officina</i>	<i>Mura</i>
9:00-11:00		Plenary Session							
11:30-13:30		MSP29	MSP06	MSP42	MSP46	MSP43 - I	MSP16	MSP22	
15:00-17:00		MSP30	MSP27	MSP40	MSP11	MSP43 - II	MSP15	MSP34	
17:30-19:30		MSP30	MSP27	MSP40	MSP11	MSP43 - II	MSP15	MSP04 - I	

Friday, June 25

h v	<i>Magna I</i>	<i>Magna A</i>	<i>A</i>	<i>B</i>	<i>C</i>	<i>Sberma</i>	<i>Crociere</i>	<i>Officina</i>	<i>Mura</i>
9:00-11:00		Plenary Session							
11:30-13:30		MSP35	MSP01-II	MSP04 - II	MSP07	MSP44	MSP45	MSP32	
13:30-14:00		Closing Ceremony							

MAP

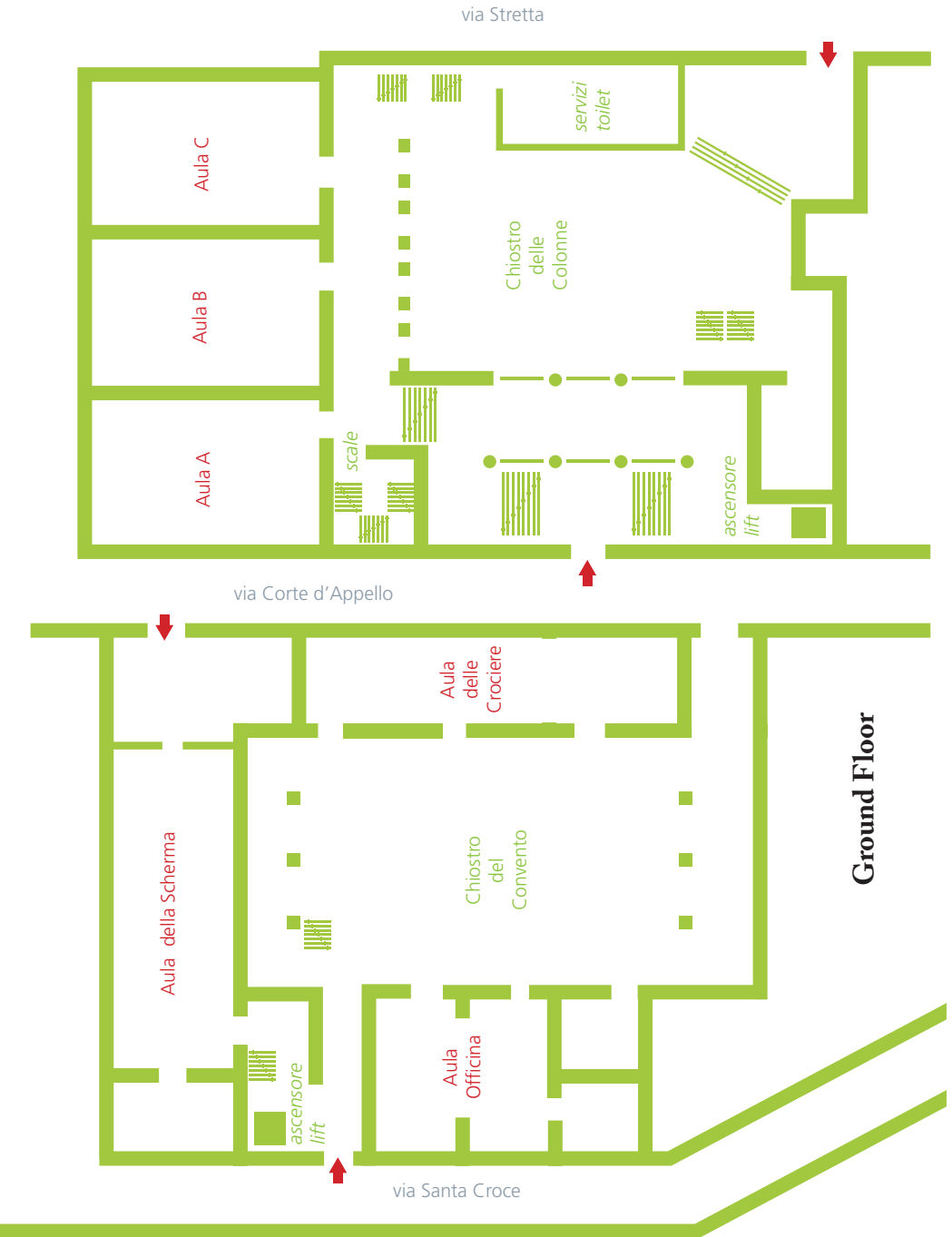
Facoltà di Architettura



Sala
delle
Mura
(al Ghetto)



First Floor



TIME TABLE

Time Table		Room
	Monday, June 21	
08.30-9.30	<i>Registration</i>	Magna I
09.30-10.00	<i>Opening Ceremony</i>	Magna I
10.00-10.30	<i>Coffè Break</i>	
10.30-11.30	<i>Plenary Session: J.L. Vazquez - Porous medium flow with fractional diffusion</i>	Magna I
10.30-11.30	<i>Plenary Session: A Tramontano - No protein is an island</i>	Magna I
	<i>Lunch Break</i>	
12.30-14.30	<i>Registration</i>	Magna A
	Minisymposia: Parallel Sessions 14.30-16.30 and 17.00-19.00	
MSP03	Analytical and Geometrical Problems in Continuum Mechanics (Mariano, Focardi)	Magna A
MSP41	Numerical Solution of Large Linear System in Numerical Optimization (Bellavia, Bertaccini)	A
MSP12/Y	Crowd and Swarm Dynamics: Interactions, Self-organization Mathematics, Applications (Frasca, Tosin)	A
MSP19	Image and Video Forensics (Battiato, Gallo, Stanco)	B
MSP10	Control and Stabilization of Nonlinear Evolutionary Systems (González Burgos, Naso)	C
MSP47 - I	Topics in Fluid Dynamics - I (Iafrazi)	Scherma
MSP38	Numerical Approximation and Applications: from Cagd to Wavelets (Carnicer, Peña, Rossini)	Scherma
MSP23	Mathematical Models and Numerical Methods for Charge Transport in Semiconductors (Ali, Mascali, Majorana, Muscato, Romano)	
MSP09	Control and Optimization with Partial Differential Equations (Annunziato, Borzi, Verani)	Crociera
MSP36	Nonlinear Evolution Equations and Applications (Seatzu, Aktosun, van der Mee)	Officina
16.30-17.00	<i>Coffè Break</i>	Mura
19.30-21.00	<i>Welcome Party, Terrazza del Ghetto</i>	

Tuesday, June 22

09.00-10.00	<i>Plenary Session: L. Formaggia - Numerical models for geological evolution</i>	Magna A
10.00-11.00	<i>Plenary Session: C. Parrés - Numerical approximation of nonconservative hyperbolic systems: applications and difficulties</i>	Magna A
11.00-11.30	<i>Coffè Break</i>	
	<i>Minisymposia: Parallel Sessions 11.30-13.30</i>	
MSP02	Algebraic Geometry for Data Analysis and Statistical Modeling (Riccomagno)	Magna A
MSP47 - II	Topics in Fluid Dynamics - II (Iafrafi)	A
MSP08 - I	Computational electromagnetics and industrial applications - I (Alonso Rodriguez, Gómez, Salgado)	B
MSP18	Image Analysis Methods for Cultural Heritage (Stanco, Battiato, Gallo)	C
MSP13 - I	Domain Decomposition Methods, Iterative Solvers and Adaptive Method - I (Verani, Ayuso de Dios, Perotto, Scacchi)	Scherma
MSP 26 - I	Mathematics in Decisions, Economics, Finance and Games - I (Carfi, Moreno, Scolozzi, Ricciardello)	Crociere
MSP28	Methods for Derivative Free Optimization: Theory and Applications (Peri, Fasano)	Officina
MSP25	Mathematical Models for the Evolution of Biological Tissues (Fasano, Herrero)	Mura
13.30-15.00	<i>Lunch Break</i>	
	<i>Minisymposia: Parallel Sessions 15.00-17.00 and 17.30-19.30</i>	
MSP21	Mathematical modelling for environmental problems (Bonaventura Fernandez Nieto)	Magna A
MSP01 - I	Advances and challenges in biomathematics and bioinformatics - I (Pontrelli, Bersani)	A
MSP14	Energy, Water and Environment (Rosso)	B
MSP39	Numerical Methods and Advanced Technologies for Applied Scientific Computing (Spitaleri)	C
MSP24	Mathematical models for smart materials and other applications (Carillo)	Scherma
MSP33	New trends in Algebraic Geometry and its Applications (Failla, Lahyane, Cerda Rodríguez)	Crociere
MSP37	Nonlinear Transport PDEs in biology and physics: Asymptotics and Entropies (Di Francesco)	Officina
MSP05	Blending together atomistic and continuum models (Colombo, Di Carlo, Podio Guidugli)	Mura
17.00-17.30	<i>Coffè Break</i>	

Wednesday, June 23

Minisymposia: Parallel Sessions 09.00-11.00

MSP48	New Trends in Scientific Computing: Computational Biology (Naldi)	Magna A
MSP20	Interplay Between Inversion Methods and Mathematical Models in the Applied Sciences (Piana)	A
MSP08 - II	Computational Electromagnetics and Industrial Applications - II (Alonso Rodriguez, Gómez, Salgado)	B
MSP17	Homogenization and Free Boundary Problems (Novaga, Orlandi)	C
MSP13 - II	Domain Decomposition Methods, Iterative Solvers and Adaptive Method - II (Verani, Ayuso de Dios, Perotto, Scacchi)	Scherma
MSP26 - II	Mathematics in Decisions, Economics, Finance and Games - II (Carfi, Martínez Moreno, Scolozzi, Ricciardello)	Crociere
MSP31/Y	Models of Cellular Motion and Aggregation (Scianna, Morale)	Officina
11.00-11.30	<i>Coffè Break</i>	
11.30-12.30	<i>Tavola Rotonda: L'Ingegneria matematica in Italia: passato, presente e futuro,</i> <i>L. Formaggia, P. Podio-Guidugli, L. Preziosi, B. Rubino</i>	Magna A
12.30-13.00	<i>Fausto Saleri 2008 Prize Recipient Lecture P. Antonietti, Modelling and numerical simulation of the polymer extrusion process in textile products</i>	Magna A
15.00-19.30:	<i>Conference Break: work, or beach & sport fun, city sightseeing</i>	
20.30-21.30	<i>Assemblea soci SIMAI, Convento di San Giuseppe (Cagliari)</i>	
21.30	<i>Banquet, Convento di San Giuseppe (Cagliari)</i>	

Thursday, June 24

09.00-10.00	<i>Plenary Session: B. Piccoli – From vehicular traffic to pedestrian motions and animal groups</i>	Magna A
10.00-11.00	<i>Plenary Session: E. Zuazua – Waves and Numerics</i>	Magna A
11.00-11.30	<i>Coffe Break</i>	
	<i>Minisymposia: Parallel Sessions 11.30-13.30</i>	
MSP29	Models and Numerical Methods in Quantative Finance (Vazquez, Pascucci)	Magna A
MSP06	Computational Aspects in Biological Tissue Mathematical Modeling (Cavallini)	A
MSP42	Phase transitions and growth phenomena (Cirillo)	B
MSP46	Variational methods in image processing (Lazzaro, Amat)	C
MSP43 - I	Recent Idea in Non-Equilibrium Thermodynamics an Applications - I (Mongiovi, Jou, Muschik, Restuccia)	Scherma
MSP16	Groebner bases and combinatorics: techniques and applications to concrete models (Utano, Rinaldo)	Crociere
MSP22	Mathematical Models and Methods for Volcano Physics (Del Negro, Russo)	Officina
13.30-15.00	<i>Lunch Break</i>	
	<i>Minisymposia: Parallel Sessions 15.00-17.00 and 17.30-19.30</i>	
MSP30	Models and simulations of engineering materials (Cuomo, Cinquini, Romano, Torrissi)	Magna A
MSP27	Mechanics in Biology (Ambrosi)	A
MSP40	Numerical methods for hyperb. systems in non-conservative form and environmental appl. (Russo, Parés)	B
MSP11	Coupled problems in fluid mechanics and fluid-structure interaction (Vergara, Badia, Principe, Nobile)	C
MSP43 - II	Recent Idea in Non-Equilibrium Thermodynamics an Applications - II (Mongiovi, Jou, Muschik, Restuccia)	Scherma
MSP15	Geometric Probability, Stochastic Processes and Applications to Sciences (Caristi, Bonanzinga)	Crociere
MSP34	New trends in kinetic theory (Bisi, Carrillo)	Officina
MSP04 - I	Analytical and Numerical Methods for Applied Inverse Problems - I (Estatico, Rodriguez)	Officina
17.00-17.30	<i>Coffe Break</i>	

Friday, June 25

09.00-10.00	<i>Plenary Session: L. Preziosi, Multiphase and multiscale aspects of cancer modelling</i>	Magna A
10.00-11.00	<i>Plenary Session: P. Quintela, Numerical simulation of nonsmooth mathematical models</i>	Magna A
11.00-11.30	<i>Coffe Break</i>	
	<i>Minisymposia: Parallel Sessions 11.30-13.30</i>	
MSP35	Non Linear Elliptic PDE's (Arcoya, Boccardo, Casado Diaz)	Magna A
MSP01 - II	Advances and challenges in biomathematics and bioinformatics - II (Pontrelli, Bersani)	A
MSP04 - II	Analytical and Numerical Methods for Applied Inverse Problems - II (Estatico, Rodriguez)	B
MSP07	Computational Continuum Mechanics (Cazzani)	C
MSP44	Simulation and optimization of complex systems modeled by macroscopic approach (D'Apice, Piccoli)	Scherma
MSP45	Variational Inequalities and Applications to Dynamic Network Equilibrium Problems (Barbagallo, Maugeri)	Crocitere
MSP32	Multi-Objective Optimization and Decision Making in Engineering Design (Poles)	Officina
13.30-14.00	<i>Closing Ceremony</i>	Magna A

MSP01 - I
Advances and Challenges in Biomathematics
and Bioinformatics

Giuseppe Pontrelli, Alberto Bersani

Tuesday, June 22 - 15:00-17:00 - Aula A Architettura

Lagrangian Coherent Structures in the intraventricular flow

Giorgio Querzoli, Stefania Fortini, Maria Grazia Badas, Stefania Espa,
Antonio Cenedese

Cardiac vortex flows, combining theoretical studies and clinical imaging

Gianni Pedrizzetti, Federico Domenichini, Giovanni Tonti

Dynamical model of non stationary heart rate series

Camillo Cammarota

Drug delivery of an eluting coronary stent in a multi-layered wall

Giuseppe Pontrelli, Filippo de Monte

Blocking of aura during migraine

Cristina Pocci

Asymptotic expansions in enzyme reactions with high enzyme concentrations

Alberto Maria Bersani, Guido Dell'Acqua

Tuesday, June 22 - 17:30 - 19:30 - Aula A Architettura

Cell membranes with alternating channels

Daniele Andreucci, Dario Bellaveglia

Multistability in Double Phosphorylation –Dephosphorylation Cycles

Alberto Maria Bersani, Guido Dell'Acqua

*Modeling electrical conduction in biological tissues through homogenization:
asymptotic stability*

Micol Amar, Daniele Andreucci, Paolo Bisegna, Roberto Gianni

*Numerical approximation of some conditioned heat flow problems across fractal
layers*

Massimo Cefalo, Guido Dell'Acqua, Maria Rosaria Lancia

Asymptotics for irregular scale fractals

Raffaella Capitanelli, Maria Agostina Vivaldi

MSP01 - II

Advances and Challenges in Biomathematics and Bioinformatics

Giuseppe Pontrelli, Alberto Bersani

Friday, June 25 - 11:30- 13:30 - Aula A Architettura

A stochastic model for simulation and forecasting of emergencies of the 118-ambulance service in the area of Milano

Alessandra Micheletti, Daniela Morale

Propagation of twist solitons in fully inhomogeneous DNA chains

Mariano Cadoni, Roberto De Leo, Sergio Demelio, Giuseppe Gaeta

A hyperbolic wound healing model in a network

Irene Guaraldo

Dynamic Modularization Assessment in Affine Protein Interaction Networks

Antonella Travaglione, Elisabetta Marras, Enrico Capobianco

Simulated models for an axiomatic theory of evolution

Cristiano Bocci, Paolo Freguglia, Enrico Rogora

Inferring Gene Networks

Alberto de la Fuente

MSP02

Algebraic Geometry for Data Analysis and Statistical Modeling

Eva Riccomagno

Tuesday, June 22 - 11:30 - 13:30 - Aula Magna Architettura

Tree-cumulants and identifiability of phylogenetic tree model

Piotr Zwiernik

Replicated measurements, ideals and derivations

Roberto Notari

Approximate algebraic varieties for empirical data

Claudia Fassino, Maria Laura Torrente

Combinatorial Commutative Algebra for the Reliability Analysis of Coherent Systems

Eduardo Sáenz-de-Cabezón

Aberration and Connectivity of Algebraic Models

Hugo Maruri-Aguilar

Hermite polynomial aliasing

Eva Riccomagno

MSP03

Analytical and Geometrical Problems in Continuum Mechanics

Paolo Maria Mariano, Matteo Focardi

Monday, June 21-14:30-16:30 - Aula Magna Architettura

Optimal design of materials under constraints on the gradient of the state

José Carlos Bellido Guerrero, Alberto Donoso, Paolo Pedregal

Asymptotic analysis of a second-order singular perturbation model for phase transitions

Emanuele Spadaro

Effects of microstructure on antiplane crack growth in couple stress elastic materials

Enrico Radi

Around (non-)existence of solutions to Prandtl equation

Tomasz Cieslak

Stability of the solutions of minimization problems on domains approaching a fractal

Uta Renata Freiberg, Davide La Torre

On uniformly Γ -equivalent theories for nonconvex discrete systems

Lucia Scardia, Anja Schloemerkerper, Chiara Zanini

Monday, June 21 - 17:00-19:00 - Aula Magna Architettura

Approximating Effective Properties of Random Particle Reinforced Composites

Daniel Peterseim

Evolution of Interfaces in Polarizable Matter

Paolo Paoletti

Mimetic finite differences for eigenvalue problems

Andrea Cangiani, Francesca Gardini, Gianmarco Manzini

On the displacement problem of elastostatics

Antonio Russo, Alfonsina Tartaglione

MSP04 - I

Analytical and Numerical Methods for Applied Inverse Problems

Claudio Estatico, Giuseppe Rodriguez

Thursday, June 24 - 17:30-19:30 - Aula Officina Architettura

High-order iterative methods for the approximation of inverse problems

Sergio Amat, J. Antonio Ezquerro, M. Angel Hernández

An SVD based Wavefront Reconstruction for Adaptive Optics

Ronny Ramlau

Remote Sensing Problems

Maurizio Migliaccio

Exact multiplicity of nematic states for an Onsager model

Marcello Lucia, Jesenko Vukadinovic

The magnetoencephalography inverse problem

Michele Piana

MSP04 - II

Analytical and Numerical Methods for Applied Inverse Problems

Claudio Estatico, Giuseppe Rodriguez

Friday, June 25 - 11:30-13:30 - Aula B Architettura

A paradigm for updating preconditioners in nonlinear image denoising and deblurring

Fiorella Sgallari, Daniele Bertaccini

Microwave imaging of dielectric targets: numerical and experimental results

Matteo Pastorino

Subspace correction methods for l_1 -norm and total variation minimization

Andreas Langer

A Deterministic Algorithm for Optical Flow Estimation

Ivan Gerace, Francesca Martinelli

Efficient inversion of Markov moment problem and applications to multiphase computations in geometric optics

Laurent Gosse

MSP05

Blending Together Atomistic and Continuum Models

Luciano Colombo, Antonio Di Carlo, Paolo Podio-Guidugli

Tuesday, June 22 - 15:00-17:00 - Sala delle Mura Ghetto

Understanding graphene elasticity by combining continuum and atomistic modeling

Luciano Colombo

Order-disorder phase transition in confined materials: the case of nanoSilicon embedded in SiO₂

Simone Meloni, Sergio Orlandini, Luciano Colombo

Running faster, running together: hydrodynamic coupling of molecular motors

Paolo Malgaretti, Ignacio Pagonabarraga

Nonlinear features and scale-effects in the Esbelby configuration

Stefano Giordano, Pier Luca Palla, Emiliano Cadelano, Luciano Colombo

New perspective on the classical mechanics of particle systems

Eliot Fried

Consistent continuum-mechanics stored energies and molecular-dynamics potentials

Paolo Podio Guidugli

Tuesday, June 22 - 17:30-19:30 - Sala delle Mura Ghetto

Small perturbations around the Parrinello Rahman Lagrangian

Marco Ribezzi Crivellari

Non-constant pressure in the Parrinello-Rahman equation

Manuela Minozzi

On-the-fly coupling between MD and continuum mechanics

Antonio DiCarlo

MSP06

Computational Aspects in Biological Tissue Mathematical Modeling

Nicola Cavallini

Thursday, June 24 - 11:30-13:30 - Aula A Architettura

Multiscale Modeling in Blood Flow Simulation

Nicola Cavallini

Stability estimates for the finite element immersed boundary method

Lucia Gastaldi

Numerical Simulation of Arterial Blood Flow Under Physiological Conditions

Martina Bukac

Mathematical Challenges in Fluid-Structure Interactions

Giovanna Guidoboni

Software for individualizing drug tumour therapy to tumours and patients

Andrey Koptuyg, Eugen Mamontov, Tobias Myrberg

Magnetic Resonance Imaging Segmentation using Parallel Computation

Lilla Bonanno, Alessandro Celona, Luigia Puccio, Silvia Marino, Placido Bramanti, Pietro Lanzafame

MSP07

Computational Continuum Mechanics

Antonio Cazzani

Friday, June 25 - 11:30-13:30 - Aula C Architettura

Second Gradient Poroelasticity and Applications

Francesco dell'Isola, Angela Madeo

Filtering and focussing effects of Structural Interfaces in Elastodynamics

Michele Brun, Sebastien Guenneau, Alexander B. Movchan, Davide Bigoni

Generalization of Garvin problem in 3D

Angela Ricciardello, Arrigo Caserta

Natural Boundary Conditions in Porous Media: an Application to Reflection and Transmission of Acoustic Waves

Angela Madeo

Multi-domain BEM for two dimensional problems of wave propagation
Alessandra Aimi, Mauro Diligenti, Chiara Guardasoni, Silvia Gazzola
Domain decomposition for 3D seismic problem: a parallel approach
Santa Agreste, Angela Ricciardello
Numerical computation on a controllability problem for the wave equation
Ernesto Aranda, Pablo Pedregal

MSP08 I

Computational Electromagnetics and Industrial Applications

Ana Alonso Rodriguez, Dolores Gómez, Pilar Salgado

Tuesday, June 22 - 11:30-13:30 - Aula B Architettura

Mathematical and numerical modeling of piezoelectric sensors

Patrick Joly, Sebastien Imperiale

Finite element solution of an eddy current time-dependent problem on moving domains arising from electromagnetic forming

Alfredo Bermudez, Carlos Reales, Rodolfo Rodriguez, Pilar Salgado

Impact of innovative materials on our capability to manage time-harmonic electromagnetic boundary value problems

Paolo Fernandes, Marina Ottonello, Mirco Raffetto

Numerical Methods for Computing the Band Spectrum of 2D Photonic Crystals

Pietro Contu, Sebastiano Seatzu, Cornelis van der Mee

Numerical solution of an axisymmetric transient non-linear eddy current problem

Alfredo Bermúdez, Dolores Gómez, Pilar Salgado

MSP08 - II

Computational Electromagnetics and Industrial Applications

Ana Alonso Rodriguez, Dolores Gómez, Pilar Salgado

Wednesday, June 23 - 9:00-11:00 - Aula B Architettura

The Interior Transmission Problem in Acoustics and Electromagnetics

Peter Monk

Exterior calculus and the p -version of edge finite elements

Daniele Boffi

Qualitative inverse scattering: computational issues and applications

Michele Piana

Reduced basis method for the harmonic Maxwell's equations: application to radar cross section computations

Yanlai Chen, Jan S. Hesthaven, Yvon Maday, Jerónimo Rodríguez

Voltage and current excitation for eddy current problems

Ana Alonso Rodríguez, Alberto Valli

MSP09

Control and Optimization with Partial Differential Equations

Mario Annunziato, Alfio Borzi, Marco Verani

Monday, June 21 - 14:30-16:30 - Aula Officina Architettura

Robust and fast numerical methods for Fredholm optimal control problems

Mario Annunziato

A fast Newton solution of dipole quantum control problems

Alfio Borzi

Optimal control problems for scalar conservation laws in higher dimensions

Carlos Castro

Some Recent Dynamic Programming Techniques for Infinite-Dimensional Problems

Roberto Ferretti

Newton-Kantorovich's theory under center-Lipschitz conditions

J. M. Guiterrez, Ángel Alberto Magreñán Ruiz, Natalia Romero

On a class of Hamilton-Jacobi equations and related logarithmic Sobolev inequality

Cristina Pucci

Monday, June 21 - 17:00-19:00 - Aula Officina Architettura

Adaptive Finite Elements for Shape Optimization problems

Marco Verani

MSP10

Control and Stabilization of Nonlinear Evolutionary Systems

Manuel González Burgos, Maria Grazia Naso

Monday, June 21 - 14:30-16:30 - Aula C Architettura

Theoretical and numerical controllability of some parabolic systems

Enrique Fernandez-Cara

Controllability of Coupled Parabolic Equations

Assia Benabdallah

Controllability of a linear retarded heat equation

Farid Ammar Khodja

Some controllability results for linear Maxwell viscoelastic fluids

Jose Luiz Boldrini, Anna Doubova, Enrique Fernandez-Cara, Manuel Gonzalez-Burgos

Virtual control approach for heterogeneous couplings

Paola Gervasio

On the energy decay in a contact problem between two thermoelastic beams

Giovanna Bonfanti

Monday, June 21 - 17:00-19:00 - Aula C Architettura

Controllability of a string submitted to unilateral constraint

Arnaud Munch

Genetic mutations and immune system competition

Carlo Bianca, Marcello Delitala

An optimal control approach of cancer chemotherapy

Mercedes Marín

Tomography and inverse problems

Faustino Maestre

MSP11
**Coupled Problems in Fluid Mechanics and Fluid-Structure
Interaction**

Christian Vergara, Santiago Badia, Javier Principe, Fabio Nobile

Thursday, June 24 - 15:00-17:00 - Aula C Architettura

Recent advances in rowing boat modeling

Nicola Parolini, Andrea Mola

A numerical overview for a nematic Ericksen-Leslie liquid crystal model

Santiago Badia, Francisco Guillén-González, Juan Vicente Gutiérrez-Santacreu

A Method for Shock Hydrodynamics on Tetrahedral Finite Elements

Guglielmo Scovazzi

Finite element approximation of magnetohydrodynamic flows for fusion reactor design

Santiago Badia, Ramon Planas

Direct Solvers in Added Mass Effect Treatment

Nicola Cavallini

Approximation of transmission conditions in domain interaction problems introducing boundary subgrid scales

Joan Baiges, Ramon Codina

Thursday, June 24 - 17:30-19:30 - Aula C Architettura

Parallel algorithms in FSI with applications to haemodynamics

Paolo Crosetto

Dynamic subgrid modelling in a finite element approximation of thermally coupled flows

Javier Principe, Ramon Codina, Matias Avila

Recent theoretical results in fluid-structure interaction problems

Christian Vergara

MSP12/Y

Crowd and Swarm Dynamics: Interactions, Self-Organization, Mathematics, Applications

Paolo Frasca, Andrea Tosin

Monday, June 21 - 17:00-19:00 - Aula A Architettura

Overlapping Generations Social Network

Andrea Blasco, Daniel Remondini

A Multiscale Approach for Granular Pedestrian Flows

Emiliano Cristiani, Benedetto Piccoli, Andrea Tosin

Mean-field limit for collective behavior models with noise

Francois Bolley, José Alfredo Cañizo, José A. Carrillo de la Plata

Trail geometry encodes heuristic information in the Argentine ant

Simon Garnier, Vincent Fourcassie, Guy Theraulaz

A refined result of flocking for the Cucker-Smale model

José A. Carrillo, Massimo Fornasier, Jesu Rosado, Giuseppe Toscani

MSP13 - I

Domain Decomposition Methods, Iterative Solvers and Adaptive Method

Marco Verani, Blanca Ayuso de Dios, Simona Perotto, Simone Scacchi

Tuesday, June 22 - 11:30-13:30 - Aula della Scherma Architettura

Multilevel Preconditioners for Discontinuous Galerkin discretizations of problems with jump coefficients

Blanca Ayuso de Dios

BDDC Preconditioners for Spectral Element Discretizations of Almost Incompressible Elasticity in Three Dimensions

Luca F. Pavarino, Olof Widlund, Stefano Zampini

A Posteriori Error Estimates for Augmented Mixed Methods in Elasticity

Tomas P. Barrios, E. Marcelo Behrens, Maria Gonzalez Taboada

Certified bounds for the error in linear outputs using flux-free error estimators

Núria Parés Mariné, Pedro Díez, Antonio Huerta

Domain Decomposition approaches to solve Electrocadiology problems

Luca Gerardo-Giorda, Mauro Perego, Alessandro Veneziani

A multilevel Newton-Krylov-Schwarz method for the Bidomain system and applications to electrocardiology

Piero Colli Franzone, Leopold Grinberg, Marilena Munteanu, Luca F. Pavarino, Simone Scacchi

MSP13 - II

Domain Decomposition Methods, Iterative Solvers and Adaptive Method

Marco Verani, Blanca Ayuso de Dios, Simona Perotto, Simone Scacchi

Wednesday, June 23 - 9:00-11:00 - Aula della Scherma Architettura

Optimized Schwarz Methods for Maxwell System

Luca Gerardo Giorda

A Mortar Method using Riesz representation for Lagrange Multipliers

Eliseo Chacon Vera

Adaptive spectral element discretization of optimal control problems

Loredana Gaudio

Numerical approximation of null controls for the heat equation through transmutation

Enrique Zuazua

An adaptive numerical method for the 1-d Laplace equation with quadratic singular potential

Cristian Mihai Cazacu, Enrique Zuaza

A posteriori control of the boundary for FEM approximation of elliptic eigenvalue problems

Marco Verani

MSP14

Energy, Water and Environment

Fabio Rosso

Tuesday, June 22 - 15:00-17:00 - Aula B Architettura

Optimal control in wastewater management: a multi-objective study

Miguel Ernesto Vazquez-Mendez, Lino Jose Alvarez-Vazquez, Nestor Garcia-Chan, Aurea Martinez

A Stefan problem for a deterministic polymer crystallization model

Ramón Escobedo, Luis Alberto Fernández

Application of mathematical modelling and numerical techniques in geothermal exploration

Fausto Batini

Modelling waste water filtration using multibore and hollow-fiber filters

Iacopo Borsi

An analytical study on the dynamics of a geothermal reservoir rain supplied

Matteo Cerminara

Computing the Permeability of a Hollow Fibre Filtration Module

Angiolo Farina

Tuesday, June 22 - 17:30-19:30 - Aula B Architettura

Simplified modelling of geothermal clusters: a focus on some important details

Alessandro Speranza

A multiscale approach to bioremediation

Angiolo Farina, Antonio Fasano, Massimiliano Muratori

Qualitative sensitivity analysis on the parameters influencing the sizing of vertical heat exchangers

Enrica Salvatici, Alessandro Baietto

A nonlinear mathematical model for multi-phase flow in geothermal reservoirs

Iacopo Borsi, Lorenzo Fusi, Fabio Rosso, Alessandro Speranza

Modelling of geothermal reservoirs

Maurizio Ceseri

MSP15

Geometric Probability, Stochastic Processes and Applications to Sciences

Giuseppe Caristi, Vittoria Bonanzinga

Thursday, June 24 - 15:00-17:00 - Aula delle Crociere Architettura

Applications of computational algebra to stochastic problems

Gaetana Restuccia

Integration in a dynamical stochastic geometric framework. Application to birth-and-growth process. Statistical aspects.

Giacomo Aletti, Enea Giuseppe Bongiorno, Vincenzo Capasso

Simulations about Penrose's CLT for Random Measures

Enea Giuseppe Bongiorno, Vincenzo Capasso, Irene Matuonto

Geometric probability for Hazmat Transport Problems

David Barilla, Paola Bartolomeo, Alfio Puglisi

Some extensions of the Cauchy Distribution

Giuseppe Caristi

Problems of Stochastic Geometry

Vittoria Bonanziga, Loredana Sorrenti

Thursday, June 24 - 17:30-19:30 - Aula delle Crociere Architettura

Certain Anti-holomorphic Submanifolds in a Locally Conformal Kaehler Manifold

Koji Matsumoto, Zerrin Senturk

On a problem of Buffon type for regular lattices with obstacles

Gioia Failla

On the distribution of a chord on a non regular polygon

Loredana Sorrenti

Conditioned random walks and Gibbs principle

Michele Broniatowski

Planar graphs with loops and applications to territorial problems

MariaFortuna Paratore

MSP16

Groebner Bases and Combinatorics: Techniques and Applications to Concrete Models

Rosanna Utano, Giancarlo Rinaldo

Thursday, June 24 - 11:30-14:00 - Aula delle Crociere Architettura

Binomial edge ideals and applications

Giancarlo Rinaldo

Families of connected graphs coming from Groebner Bases generated by binomials

Gioia Failla

Groebner basis and triangulations

Paola Lea Staglianò

Graphs and groebner bases

Maurizio Imbesi, Monica La Barbiera

Applications of Groebner bases theory to problems of Model Theory in first order logic

MariaFortuna Paratore, Gaetana Restuccia

Simplicial complexes, duality and applications

Loredana Sorrenti, Vittoria Bonanzinga

Concrete problems in Computational Geometry

Adelina Fabiano

Groebner bases of binomial ideals

Rosanna Utano, Gaetana Restuccia

MSP17

Homogenization and Free Boundary Problems

Matteo Novaga, Giandomenico Orlandi

Wednesday, June 23 - 9:00-11:00 - Aula C Architettura

Droplet phases in non-local Ginzburg-Landau models with Coulomb repulsion in two dimensions

Cyrill Muratov

Vortex density models for 3-D superconductivity and bose-Einstein condensates

Giandomenico Orlandi

A mathematical model of neural axons based on metric induced by Hamilton-Jacobi equation

Antonio Marigonda, Alessandro Daducci, Giandomenico Orlandi, Roberto Posenato

Bump solutions for semilinear equations in periodic media

Matteo Novaga

Curvature flow with a forcing term

Annalisa Cesaroni, Matteo Novaga, Enrico Valdinoci

G-convergence and homogenization for evolution equations in divergence form

Fabio Paronetto

MSP18

Image Analysis Methods for Cultural Heritage

Filippo Stanco, Sebastiano Battiato, Giovanni Gallo

Tuesday, June 22 - 11:30-13:30 - Aula C Architettura

Pattern recognition techniques for multispectral images

Giuseppe A Maino, Silvia Massari, Lorenza Roversi

Morphological operators and perception laws for the automatic detection of cracks in digitized paintings

Vittoria Bruni, Domenico Vitulano, Giuliana Ramella

Digital Reconstruction of Fragmented Glass Plate Photographs: the Case of Archaeological Photography

Filippo Stanco, Davide Tanasi, Giovanni Gallo, Enzo Gabriele Leanza

Smart Photo Sticking for Intangible Cultural Heritage

S. Battiato, S. Bianco, G. Ciocca, F. Gasparini, Giovanni Puglisi, R. Schettini

Fine Scale 3D Reconstruction of Small Artifacts from Digital Scanning Electron Microscopy

Ruggero Pintus, Simona Podda, Massimo Vanzi, Enrico Gobbetti

"The Red Giant". High-end computer graphic interactive technologies applied to archaeological research: reconstruction hypothesis of nuraghe Arrubiu (Orroli, Sardinia)

Giorgio Todde, Lucia Mura

MSP19

Image and Video Forensics

Sebastiano Battiato, Giovanni Gallo, Filippo Stanco

Monday, June 21 - 14:30-16:30 - Aula B Architettura

Detection of resampling evidence in digital images: where are we?

Francesca Uccheddu, Alessia De Rosa, Alessandro Piva, Mauro Barni

An overview of forensic image processing issues and results, based on a large dataset coming from real cases

Martino Jerian, Sergio Carrata, Federico Cervelli, Francesca Dardi

A comparison of denoising techniques for forgery detection based on sensor noise

Ignazio Finizio, Francesco Gargiulo, Sara Parrilli, Giovanni Poggi, Carlo Sansone, Luisa Verdoliva

Advanced analysis of image collections for digital investigation: status and perspectives
Sebastiano Battiato, Giovanni Maria Farinella, Giuseppe Claudio Guarnera,
Giovanni Puglisi

A survey on automatic shoemarks recognition methods for crime scene experts
Francesca Dardi, Federico Cervelli, Sergio Carrato

An Improved Benchmarking Dataset for Forgery Detection Strategies
Sebastiano Battiato, Giuseppe Messina, Lucia Trupia

Monday, June 21 - 17:00-19:00 - Aula B Architettura

An advanced image processing tool for latent fingerprint analysis and liveness assessment
Fabio Roli, Gian Luca Marcialis, Pietro Coli

Static features for detecting fake fingerprints
Emanuela Marasco, Carlo Sansone

A new method for real-time video quality measurement in IPTV (Internet Protocol Television) service

Salvatore Cuomo, Giuseppe Magnete, Vincenzo Orabona

Optimized joint bandwidth and playout control for streaming-traffic over wireless-channels

Nicola Cordeschi, Tatiana Patriarca, Enzo Baccarelli

MSP20

**Interplay Between Inversion Methods and Mathematical Models in
the Applied Sciences**

Michele Piana

Wednesday, June 23 - 9:00-11:00 - Aula A Architettura

The linear sampling method as a consequence of a power constraint on the scattered field
Riccardo Aramini

Tracking the time course of visual recognition with dynamical MEG source modeling
Thomas Serre

From electron maps to acceleration mechanisms of energetic particles in the flaring Sun
Anna Maria Massone

Unsupervised Statistical Learning as Applied to Inverse Scattering Problems
Federico Viani, Leonardo Lizzi, Andrea Massa

MSP21

Mathematical Modelling for Environmental Problems

Luca Bonaventura, Enrique Fernandez Nieto

Tuesday, June 22 - 15:00-17:00 - Aula Magna Architettura

Non-normal stability analysis of a shear current under surface gravity waves

Davide Ambrosi

A 1D physical-NPZ model for the study of the biogeochemical processes induced by tides in the Strait of Gibraltar

Jorge Macías, M. J. Castro, E. D. Fernandez-Nieto

Use of the positive streamwise invariant (PSI) method for convection dominated problems in geophysical applications

Marco Restelli, Tomas Chacon Rebollo, Macarena Gomez Marmol

A multilayer Shallow Water model

Amelie Rambaud

Modelling of some Non-Newtonian fluids through a Shallow Water system

Didier Bresch, Gladys Narbona-Reina

A multi-layer network model for the zebra mussel invasion of the Mississippi-Missouri river system

Lorenzo Mari, Enrico Bertuzzo, Renato Casagrandi, Marino Gatto, Andrea Rinaldo

Tuesday, June 22 - 17:30-19:30 - Aula Magna Architettura

Numerical solution of nonlinear heat-mass transfer models in soils under forest fires

José Durany, Brunho Fraga, Fernando Varas

Some Recent Results on the Stability of Semi-Lagrangian Schemes

Roberto Ferretti

Numerical verification of shallow ice profile models through effective tools with analytical solutions

Natividad Calvo, José Durany, Carlos Vázquez

Mathematical and numerical modelling of free surface flows over mobile bed with high sediment concentration

Giorgio Rosatti, Giulia Garegnani, Luca Bonaventura

MSP22

Mathematical Models and Methods for Volcano Physics

Ciro Del Negro, Giovanni Russo

Thursday, June 24 - 11:30-13:30 - Aula Officina Architettura

An approach to mitigate lava flow invasion by optimized barrier configuration and numerical simulation applied to 1981 and 2001 Etna eruption

Silvia Scifoni, Annalisa Cappello, Mauro Coltelli, Ciro Del Negro, Maria Marsella, Cristina Proietti, Annamaria Vicari

Lava flow hazard zonation of large areas: an example of application to Mt Etna

Gino Mirocle Crisci, Maria Vittoria Avolio, Donato D'Ambrosio, Salvatore Di Gregorio, Valeria Lupiano, Rocco Rongo, William Spataro, Boris Behncke, Marco Neri

Experimental Measurements of Spectral Emissivity of Basaltic Melts

Valerio Lombardo, Claudia Spinetti, Jacopo Taddeucci

An original satellite data analysis strategy for volcanic activity monitoring and investigation in the space-time domain

Nicola Pergola, Francesco Marchese, Valerio Tramutoli

MSP23

Mathematical Models and Numerical Methods for Charge Transport in Semiconductors

Giuseppe Ali, Giovanni Mascali, Armando Majorana,

Orazio Muscato, Vittorio Romano

Monday, June 21 - 14:30-16:30 - Aula delle Crociere Architettura

Diffusive limit of the two-band kp model for semiconductors

Luigi Barletti, Giovanni Frosali

Realistic simulation of a Double Gate MOSFET through a hybrid quantum-classical model

Maria Jose Caceres Granados, Jose Miguel Mantas Ruiz, Francesco Vecil

Hydrodynamic subband model for semiconductors based on the Maximum entropy principle

Vittorio Romano, Giovanni Mascali

Applications of the discontinuous Galerkin method to kinetic models for semiconductor devices

Armando Majorana

Multi-Physics Computational Models in Neuroelectronics

Riccardo Sacco

Guidelines for the development of multigrid optimization schemes

Alfio Borzi

Monday, June 21 - 17:00-19:00 - Aula delle Crociere Architettura

Thermal and electrical modeling of sub-micron silicon devices

Vincenza Di Stefano, Orazio Muscato

Diffusive limit of MEP hydrodynamical models for semiconductors and linear irreversible thermodynamics

Giuseppe Ali, Vittorio Romano, Nella Rotundo

A full band hydrodynamic model for Si semiconductors based on the Maximum entropy principle

Giovanni Mascali, Vittorio Romano

MSP24

Mathematical Models for Smart Materials and Other Applications

Sandra Carillo

Tuesday, June 22 - 15:00-17:00 - Aula della Scherma Architettura

The Cahn-Hilliard equation with dynamic boundary conditions and singular potentials

Gianni Gilardi

Temperature and flux controllability for heat equations with memory

Sergei Avdonin, Luciano Pandolfi

Abstract elliptic and parabolic problems with applications in cylindrical domains

Davide Guidetti

Energy decay for a class of weakly dissipative second-order systems with memory

Maria Grazia Naso

Non linear wave propagation in n-type extrinsic semiconductors with defects of dislocation

Maria Paola Mazzeo, Liliana Restuccia

Modelling heat transport in nanosystems

Vito Antonio Cimmelli, David Jou, Antonio Sellitto

Vanishing Viscosity Solutions to Rate-independent Systems

Riccarda Rossi

Tuesday, June 22 - 17:30-19:30 - Aula della Scherma Architettura

Wave propagation in a continuously-stratified anisotropic elastic layer

Angelo Morro

A unilateral contact problem coupling friction and adhesion

Giovanna Bonfanti

A geometric perspective on Irreversible Thermodynamics with Internal Variables and applications to continuum models

Marina Dolfin, Mauro Francaviglia

Evolution Equation for Flame Ball Radius

Gianni Pagnini, Francesco Mainardi

Integro-differential systems in magneto-viscoelasticity

Sandra Carillo

Hysteresis Loop in paramagnetic-ferromagnetic phase transition

Mauro Fabrizio, Giovanni Matarazzo, Massimo Pecoraro

Long-term Dynamics of a coupled system for the suspension bridge model

Ivana Bochicchio, Claudio Giorgi, Elena Vuk

MSP25

Mathematical Models for the Evolution of Biological Tissues

Antonio Fasano, Miguel Angel Herrero

Tuesday, June 22 - 11:30-13:30 - Sala delle Mura Ghetto

A Mathematical Model for the Growth of Elongated Bones

Antonio Fasano, Miguel Ángel Herrero, José Manuel López, Elena Medina

A fluid-dynamic model for the growth of phototrophic biofilms

Cristiana Di Russo, Fabrizio Clarelli, Roberto Natalini, Magali Ribot

Modelling the Interaction of Infused Factor VIII and a Generic Inhibitor in Hemophilia A Patients

Alvaro Köhn, Miguel Angel Herrero

Initial/boundary-value problems of tumor growth with the theory of mixtures

Andrea Tosin

A simplification of the two-fluid approach for modelling tumour spheroids

Antonio Fasano, Marco Gabrielli, Alberto Gandolfi

MSP26 - I

Mathematics in Decisions, Economics, Finance and Games

David Carfi, Juan Martínez Moreno, Donato Scolozzi, Angela Ricciardello

Tuesday, June 22 - 11:30-13:30 - Aula delle Crociere Architettura

Coopetitive Games

David Carfi

An algorithm for payoff space in $C1$ parametric game

Santa Agreste, Angela Ricciardello

Balancing interfering elements

David Carfi, Gianfranco Gambarelli, Angelo Uristani

Urban traffic management via environmental options: an evolutionary game model

Angelo Antoci, Marcello Galeotti, Davide Radi

Oligopoly on a Circle

Ahmad Kabir Naimzada, Mauro Sodini

Solvency index for pay-as-you-go pension funds

Roberta Melis, Alessandro Trudda

MSP26 - II

Mathematics in Decisions, Economics, Finance and Games

David Carfi, Juan Martínez Moreno, Donato Scolozzi, Angela Ricciardello

Wednesday, June 23 - 9:00-11:00 - Aula delle Crociere Architettura

Cristoffell bilinear forms for financial evolutions

David Carfi

A bilinear form approach to pricing perpetual American put options

Luca Anzilli, Lucianna Cananà, Donato Scolozzi

Financial immunization for perpetual cash flow

Luigi Romano

Transform Methods for Cash Flow Modeling

Juan Martinez-Moreno, A Roldan, C Roldan

A three parameter chaotic model to reproduce the distribution of prices in Financial Markets

Leon Zingales, Francesco Scaramuzzino, Carmen Vitanza

Price formation and free boundary problems: qualitative analysis

Maria Pia Guldani

MSP27
Mechanics in Biology

Davide Ambrosi

Thursday, June 24 - 15:00-17:00 - Aula A Architettura

Force Transmission during Cell Migration and Polarization

Maxime Fournier

Cellular Traction as an Optimal Control Problem

Guido Vitale

On the dynamics of skeletal muscle at different scales

Antonio Di Carlo, Lena Rebecca Zastrow

Modeling the Left Ventricular Torsion and Function

Paola Nardinocchi, Paolo Emilio Puddu, Luciano Teresi, Valerio Varano

Selective enzymatic digestion as a key to understand soft tissue microstructure

Maurizio Ventre, Francesco Mollica, Paolo A. Netti

Unfolding Osteons: Poroelasticity, Microstructure and beyond

Vittorio Sansalone, Joanna Kaiser, Salah Naili, Thibault Lemaire, Antonio Di Carlo

Tuesday, June 22 - 17:30-19:30 - Aula A Architettura

Numerical analysis of a piezoelectric strain-adaptive bone remodeling problem

Jose R. Fernandez, José M. Garcia-Aznar, Rebeca Martinez

Growth, Mass Transfer, and Remodelling in Multiphase Biological Materials

Alfio Salvatore Grillo, Gabriel Wittum

MSP28

Methods for Derivative Free Optimization: Theory and Applications

Daniele Peri, Giovanni Fasano

Tuesday, June 22 - 11:30-13:30 - Aula Officina Architettura

Globally convergent modifications of Particle Swarm Optimization for Unconstrained Optimization

Emilio Fortunato Campana, Matteo Diez, Giovanni Fasano, Daniele Peri

A Coupled PSO-ACM Derivative Free Global Optimization Method

Daniele Peri, Matteo Diez

Coupling local and global models into a derivative-free global optimization algorithm

Daniele Peri, Federica Tinti, Matteo Diez

A stochastic programming approach to robust ship design using a derivative-free particle swarm optimization algorithm

Matteo Diez, Daniele Peri

MSP29

Models and Numerical Methods in Quantitative Finance

Carlos Vazquez, Andrea Pascucci

Thursday, June 24 - 11:30 - 13:30 - Aula Magna Architettura

Fast binomial procedures for pricing Parisian/ParAsian options

Marcellino Gaudenzi, Antonino Zanette

Numerical methods for pricing spread options

Ignacio Arbues, Carlos Moreno González

Numerical methods for PDE problems modelling Amerasian options prices

Alfredo Bermúdez, María R. Nogueiras, Carlos Vázquez

Numerical solution of PDE models for retirement plans based on average salary

María del Carmen Calvo, Carlos Vázquez

Modeling, mathematical analysis and numerical methods for a ratchet cap pricing problem

Andrea Pascucci, María Suárez, Carlos Vázquez

Free boundary problem for arithmetic Amerasian options

Andrea Pascucci

MSP30

Models and Simulations of Engineering Materials

Massimo Cuomo, Carlo Cinquini, Vittorio Romano, Mariano Torrisi

Thursday, June 24 - 15:00-17:00 - Aula Magna Architettura

Numerical Methods and Adaptivity for Stiff ODEs

Alessandra Jannelli, Riccardo Fazio

Modeling and simulation of 3rd generation solar cells

Carlo de Falco, Riccardo Sacco, Maurizio Verri

Discontinuity waves for a two fluid model

Carmen Mineo, Mariano Torrisi

Exact integration of an Element with Embedded Discontinuities formulation

Massimo Cuomo, Loredana Contrafatto

A Finite Element Multifield Model for Stability Analysis of Composite Laminated Plates

Antonio Cazzani, Riccardo Battaglia, Antonio Tralli

Mechanical behaviour of deposited waste materials

Francesco Castelli, Valentina Lentini

Thursday, June 24 - 17:30-19:30 - Aula Magna Architettura

Simulation of the performance of organic electronic devices based on a two-dimensional drift-diffusion approach

Manfred Gruber, Benjamin Stickler, Alexander Meierhofer, Karin Zojer, Ferdinand Schürer

Mathematical Models and Micromagnetic Simulations of Spintronic Oscillators

Giancarlo Consolo

2d numerical simulations of an electron-phonon hydrodynamical model based on the maximum entropy principle

Vittorio Romano, Alexander Rusakov

On the use of local and global stress constraints in topology optimization

Carlo Cinquini, Matteo Bruggi

Coupled diffusion-damage modeling of historical masonry walls

Giovanni Castellazzi, Stefano de Miranda, Giovanni Formica, Francesco Ubertini

MSP31/Y
Models of Cellular Motion and Aggregation

Marco Scianna, Daniela Morale

Wednesday, June 23 - 9:00-11:00 - Aula Officina Architettura

Cellular Potts Model for cell migration across mesothelial linings

Chiara Giverso

Extended Cellular Potts Models for Cell Migration

Marco Scianna

Progression and Heterogeneity in Cancer Dynamics. A Model of Colorectal Cancer Based on The Kinetic Theory for Active Particles

Marcello Delitala, Tommaso Lorenzi

Modeling Epidemics and Virus Mutations by Methods of the Mathematical Kinetic Theory for Active Particles

Maria Cesarina Salvatori

Multiscales and Stochastic Modelling for Angiogenesis

Daniela Morale, Vincenzo Capasso

Computational models of mechanotransduction phenomena of in vitro cultures of cartilage cells

Paola Causin

MSP32
**Multi-Objective Optimization and Decision Making in
Engineering Design**

Silvia Poles

Friday, June 25 - 11:30-13:30 - Aula Officina Architettura

Multi-Objective Optimization

Silvia Poles

Bootstrap analysis in metamodel-based simulation-optimization under uncertainty

Gabriella Dellino, Jack P.C. Kleijnen, Carlo Meloni

Numerical algorithms for an inverse problem of corrosion detection

Giulia Deolmi, Fabio Marcuzzi, Sergio Marinetti, Silvia Poles

Lipschitz Sampling and Adaptive Strategies for Improving Metamodel Accuracy

Alberto Lovison, Enrico Rigoni

MSP33

New Trends in Algebraic Geometry and its Applications

Gioia Failla, Mustapha Lahyane, Jesús Adrian Cerda Rodríguez

Tuesday, June 22 - 15:00-17:00 - Aula delle Crociere Architettura

Geometry of Rational Surfaces

Mustapha Lahyane

Linear Systems on Projective Rational Surfaces

Jesus Adrian Cerda Rodríguez

Rational Varieties with monoid $S(n,m)$ and Groebner basis of defining ideal of $K[S(n,m)]$

Gioia Failla, Mustapha Lahyane

New Construction of Algebraic Geometry Codes

Brenda Leticia De La Rosa Navarro

Rees Algebras of a Class of Monomial Ideals

Rosanna Utano

Unique expansions for ternary alphabets

Anna Chiara Lai

Tuesday, June 22 - 17:30-19:30 - Aula delle Crociere Architettura

Essential perturbations of polynomial vector fields with a period annulus

Adriana Buica, Maite Grau, Jaume Gine

Rational Surfaces whose Cox Ring is Finitely Generated

Brenda Leticia De La Rosa Navarro, Mustapha Lahyane, Israel Moreno Mejia

Prime numbers and cryptography

Paola Lea Staglianò

Anticanonical Linear Systems of Rational Surfaces

Jesus Adrian Cerda Rodríguez, Gioia Failla, Mustapha Lahyane,
Osvaldo Osuna Castro

Projective Cubic Curves with some Applications

Juan Bosco Frias Medina

Controlling the number of limit cycles of an interstellar 2-d model

Maria Jesus Alvarez, Armengol Gasull, Rafel Prohens

MSP34

New Trends in Kinetic Theory

Marzia Bisi, José Antonio Carrillo

Thursday, June 24 - 14:15-17:00 - Aula Officina Architettura

Discontinuous Galerkin Solver for the Semiconductor Boltzmann-Poisson Model

Armando Majorana

Strong convergence towards self-similarity for one-dimensional dissipative Maxwell models

Giulia Maria Furioli, Ada Pulvirenti, Elide Terraneo, Giuseppe Toscani

Localized Kinetic Upscaling Techniques for Rarefied Gas Dynamics Simulations

Giacomo Dimarco

Relaxation problems for reacting gas mixtures

Marzia Bisi, Maria Groppi, Giampiero Spiga

Gas rarefaction effects in Micro-Electro-Mechanical-Systems applications

Silvia Lorenzani

A kinetic model for the keloid genesis: Malignant effects and immune system response

Carlo Bianca

Simulation of a Double Gate MOSFET through a hybrid quantum-classical model

Naoufel Ben Abdallah, Maria Jose Caceres Granados,

Jose Antonio Carrillo de la Plata, Francesco Vecil

Some kinetic models in swarming

Jose A. Carrillo

MSP35

Non Linear Elliptic PDE's

David Arcoya, Lucio Boccardo, Juan Casado Diaz

Friday, June 25 - 11:30-13:30 - Aula Magna Architettura

Degenerate Elliptic Equations with Nonlinear Boundary Conditions and Measures Data

Jose M. Mazon

On optimal control problem in the coefficients for Elliptic Problems

Faustino Maestre

Elliptic equations with singularity at the boundary arising from state constraint problems

Alessio Porretta

Continua of solutions for quasilinear elliptic singular problems

José Carmona Tapia

Quasilinear and Semilinear Singular Problems

Luigi Orsina

MSP36

Nonlinear Evolution Equations and Applications

Sebastiano Seatzu, Tuncay Aktosun, Cornelis van der Mee

Monday, June 21 - 14:30-16:30 - Sala delle Mura Ghetto

Novel reformulation of water and interfacial waves, asymptotic reductions and solitary waves

Mark Jay Ablowitz

Nonlinear Evolution Equations and Applications

Tuncay Aktosun

Nonlinear Propagation in Fiber-optic Systems

Marco Secondini, Enrico Forestieri

Monday, June 21 - 17:00-19:00 - Sala delle Mura Ghetto

Inverse Scattering Transform (IST) for the Multicomponent Nonlinear Schrödinger (NLS) Equation Under Non-Vanishing Boundary Conditions

Barbara Prinari

Numerical solution of the small dispersion limit of the Camassa-Holm equation and multiscale expansions

Simonetta Abenda, Tamara Grava, Christian Klein

Nonlinear Evolution Equations of Diffusive Type on Moving Boundaries

Silvana De Lillo

Nonlinear envelope equation for broadband optical pulses in quadratic media

Matteo Conforti, Fabio Baronio, Costantino De Angelis

Numerical solution of the nonlinear Schrödinger equation

Antonio Aricò, Giuseppe Rodriguez, Sebastiano Seatzu

Exact Solutions to the Sine-Gordon Equation

Francesco Demontis

MSP37

Nonlinear Transport PDEs in Biology and Physics: Asymptotics and Entropies

Marco Di Francesco

Tuesday, June 22 - 15:00-17:00 - Aula Officina Architettura

Some polymeric fluid flow models: steady states & large-time convergence

Anton Arnold

Coupled chemotaxis-fluid models

Alexander Lorz, Marco Di Francesco, Renjun Duan, Jian-Guo Liu,
Peter Markowich

Finite mass self-similar blowing-up solutions of a chemotaxis system with non-linear diffusion

Adrien Blanchet

L^p Theory for the Multidimensional Aggregation Equation

Andrea L. Bertozzi, Tomas Laurent, Jesus Rosado

Entropy-entropy dissipation inequalities and convergence to equilibrium for fragmentation equations with a drift term

Maria J. Caceres Granados, José Alfredo Cañizo, Stephane Mischler

Existence theory for nonlinear Cross Diffusion models

Baerbel Schlake

Tuesday, June 22 - 17:30-19:30 - Aula Officina Architettura

On mathematical models for crowd motion - two examples

Jan-Frederik Pietschmann

Models of Morphogen Transport

Dariusz Wrzosek

Local stability in a price formation model: a mean field approximation

Maria Pia Gualdani

MSP38

Numerical Approximation and Applications: from Cagd to Wavelets

Jesus Carnicer, Juan Manuel Peña, Milvia Rossini

Monday, June 21 - 14:30-17:00 - Aula della Scherma Architettura

Nonstationary Multiresolution Analysis and Biorthogonal Bases

Francesca Pitolli

Efficient algorithms for evaluation of trigonometric and hyperbolic curves

Esmeralda Mainar, Juan Manuel Peña

Interactive wavelet simplification of 2D sketches for CAD curve styling

Loredana Chieppa, Michele Fiorentino, Antonio Emmanuele Uva,
Giuseppe Monno

A method to fill holes in a 3D-surface by minimal energy spline surfaces

Miguel Ángel Fortes, Pedro González, Miguel Pasadas

Path Design and Approximation with Pythagorean Hodograph Curves

Carla Manni, Alessandra Sestini

On the optimality of B-bases

Jorge Delgado

Survey of Parametric Curved Patches for C^0 Interpolation of Triangular Meshes

Maria Boschioli, Christoph Fünfzig, Lucia Romani, Gudrun Albrecht

MSP39

Numerical Methods and Advanced Technologies for Applied Scientific Computing

Rosa Maria Spitaleri

Tuesday, June 22 - 15:00-17:00 - Aula C Architettura

Computational Simulations & nD Visualization: Research & Development, Education & Training

Bharat Soni

Regions detection in SAR images by level set method

Maria Mercede Cerimele, Rossella Cossu

Text line segmentation in ancient documents by fast marching method

Rossella Cossu, Maria Mercede Cerimele, Marco Veneziani

Assessing the impact of orbital debris on a spatial system

Romain Kervac, Sylvain Bertrand, Thibault Lang, Catherine Jolly, Therese Donath, Jean Bourrely

Numerical solution of electrons' and phonons' coupled dynamics in Carbon Nanotubes

Maria Morandi Cecchi, Vittorio Rispoli

Tuesday, June 22 - 17:30-19:30 - Aula C Architettura

Advanced image processing methods and visualization facilities for accurate motion tracking of the heart wall

Bernhard Quatember, Wolfgang Recheis, Martin Mayr, Stefanos Demertzis, Ezio Venturino, Alessandra Derossi, Roberto Cavoretto, Giampietro Allasia

Metamodels for fast multi-objective optimization: trading off global exploration and local exploitation

Enrico Rigoni, Alessandro Turco

New algorithms and online knowledge in numerical grid generation

Rosa Maria Spitaleri

Grid Generation: State-of-the-art, State-of-the-practice & Future Directions

Bharat Soni

MSP40

Numerical Methods for Hyperbolic Systems in non-Conservative Form and Environmental Applications

Giovanni Russo, Carlos Parés

Thursday, June 24 - 15:00-17:00 - Aula B Architettura

Well balanced HWENO scheme for Shallow Water Equations

Valerio Caleffi, Alessandro Valiani

Head Reconstruction Method to Balance Flux and Source Terms in Shallow Water Equations

Enrico Creaco, Alberto Campisano, Alexander Khe, Carlo Modica, Giovanni Russo

High Order Well Balanced Schemes for Systems of Balance Laws

Giovanni Russo, Alexander Khe

Path-conservative methods for systems of balance laws

Maria Luz Muñoz-Ruiz, Carlos Pares

On WAF type methods for nonconservative problems

Manuel J. Castro Díaz, Enrique D. Fernández-Nieto, Gladys Narbona Reina

A Simple Extension of the Osher Riemann Solver to General Conservative and Non-Conservative Hyperbolic Systems

Michael Dumbser

Thursday, June 24 - 17:30-19:30 - Aula B Architettura

On the derivation of fast finite volume solvers for non-conservative hyperbolic systems: PVM methods

Manuel J. Castro Díaz, Enrique D. Fernández-Nieto

High-order polynomial reconstructions. Solving nonconservative hyperbolic systems using GPUs

Jose M. Gallardo, S. Ortega, M. Asuncion, J. M. Mantas

HLLC solver for non-conservative systems

Manuel Castro Díaz, Enrique Fernández Nieto, Tomás Morales de Luna, Gladys Narbona Reina

MSP41

Numerical Solution of Large Linear Systems in Numerical Optimization

Stefania Bellavia, Daniele Bertaccini

Monday, June 21 - 14:30-16:30 - Aula A Architettura

Improving a class of PCG-based interior-point methods by quadratic regularizations

Jordi Castro, Jordi Cuesta

Issues on preconditioning Conjugate Gradient methods for large scale unconstrained optimization

Giovanni Fasano, Massimo Roma

On Preconditioner Updates for Sequences of Linear Systems in Large-Scale Optimization

Stefania Bellavia, Valentina De Simone, Daniela di Serafino, Benedetta Morini

Subspace Minimization Methods for Solving Nonlinear Least-Squares Problems

Nick I.M. Gould, Margherita Porcelli, Philippe Toint

A reduced Newton method for large constrained linear least-squares problems

Benedetta Morini, Raymond H.F. Chan, Margherita Porcelli

MSP42

Phase Transitions and Growth Phenomena

Emilio Nicola Maria Cirillo

Thursday, June 24 - 11:30-13:30 - Aula B Architettura

Phase separation of binary mixtures with dynamic temperature

Giuseppe Gonnella, Antonio Lamura, Adriano Tiribocchi

Droplet growth for Isotropic and Anisotropic model with conservative Kawasaki dynamics

Francesca Romana Nardi

Dynamical scaling and its violations in phase-ordering phenomena

Federico Corberi

Looking for large cliques through spin glasses

Alexandre Gaudilliere

Mechanical unfolding of proteins and RNA: an Ising-like model

Alessandro Pelizzola

Fourier law, phase transitions and the stationary Stefan problem

Anna De Masi, Errico Presutti, Dimitrios Tsagkarogiannis

Phase transition in soil consolidation

Emilio Nicola Maria Cirillo, Nicoletta Ianiro, Giulio Sciarra

MSP43 - I

Recent Ideas in Non-Equilibrium Thermodynamics and Applications

Maria Stella Mongioli, David Jou, Wolfgang Muschik, Liliana Restuccia

Thursday, June 24 - 11:30-13:30 - Aula della Scherma Architettura

Thermodynamic equilibrium and space-time geometry - a survey

Horst-Heino von Borzeszkowski, Thoralf Chrobok, Wolfgang Muschik

Objectivity and Kinematics of Continua

Tamas Fulop, Peter Van

Thermodynamical Concepts for Computational Methods

Heiko Herrmann

Systematic remarks on the entropy inequality and on the exploitation of the entropy principle in thermodynamics of rigid heat conductors

Vito Antonio Cimmelli

Exploiting entropy inequality in gradient material theories

Vita Triani, Antonio Sellitto, Vito Antonio Cimmelli

On a generalized kinetic approach to Relativistic Extended Thermodynamics

Maria Cristina Carrisi, Sebastiano Pennisi

MSP43 - II

Recent Ideas in Non-Equilibrium Thermodynamics and Applications

Maria Stella Mongiovi, David Jou, Wolfgang Muschik, Liliana Restuccia

Thursday, June 24 - 15:00-17:00 - Aula della Scherma Architettura

Propagation of magnetoelastic waves in a superconducting heterostructure

Bogdan Maruszewski, Andrzej Drzewiecki, Roman Starosta

On a thermodynamic theory for magnetic relaxation phenomena in anisotropic magnetizable media

Liliana Restuccia

A mechanical approach to fractional non-local thermoelasticity

Mario Di Paola, Guido Borino, Massimiliano Zingales

Thermodynamics of ferromagnetic crystals with a non-Euclidean structure as internal variable

Marina Dolfin, Mauro Francaviglia, Liliana Restuccia

Statistical mechanics and thermodynamics of turbulent quantum vortex tangles

David Jou, Maria Stella Mongiovi, Michele Sciacca

Thermodynamic and Hamiltonian Modeling of Quantum Turbulence

Miroslav Grmela

Thursday, June 24 - 17:30-19:30 - Aula della Scherma Architettura

Flow of turbulent superfluid helium inside a porous medium

Lucia Ardigzone, Giuseppa Gaeta, Maria Stella Mongiovi

Fractal dimension of superfluid turbulence at very low temperature

Carlo Ferruccio Barenghi, David Jou, Maria Stella Mongiovi, Michele Sciacca

Decay of quantum turbulence in heat flux experiments

Michele Sciacca, Carlo Ferruccio Barenghi, Yuri Sergeev

Determination of asymptotic waves in a fluid mixture of T cells by double scale method

Marina Dolfin, Liliana Restuccia

Phonon boundary effects and thermal conductivity in nanosystems

Antonio Sellitto, David Jou, Francesc Xavier Alvarez

Extended thermodynamics and heat fluctuations: application to nanowires

José Casas-Vázquez, Manuel Criado-Sancho, David Jou

Internal Variables thermodynamics description of thermodiffusion, suspensions and porous media

Patrizia Rogolino, Mauro Francaviglia, Annunziata Palumbo

MSP44

Simulation and Optimization of Complex Systems Modeled by Macroscopic Approach

Ciro D'Apice, Benedetto Piccoli

Friday, June 25 - 11:30-13:30 - Aula della Scherma Architettura

A multiscale approach to the modeling of crowd dynamics

Emiliano Cristiani, Benedetto Piccoli, Luigi Sorrentino, Andrea Tosin

Optimization techniques to improve supply chains productivity

Ciro D'Apice, Carmine De Nicola, Rosanna Manzo, Benedetto Piccoli

Optimal redistribution of traffic flows in emergency cases

Rosanna Manzo, Benedetto Piccoli, Luigi Rarità

Control of traffic flows on Barcelona networks

Luigi Rarità, Ciro D'Apice, Benedetto Piccoli, Dirk Helbing

MSP45

Variational Inequalities and Applications to Dynamic Network Equilibrium Problems

Annamaria Barbagallo, Antonino Maugeri

Friday, June 25 - 11:30-13:30 - Aula delle Crociere Architettura

On differentiability of the minima of nondifferentiable functionals

Maria Alessandra Ragusa, Atsushi Tachikawa

Weighted Traffic Equilibrium Problem in Non Pivot Hilbert Spaces

Sofia Giuffrè, Stéphane Pia

Regularity results of the solutions of a parametric economic general equilibrium model of pure exchange with a numerical application

Francesco Scaramuzzino, Carmen Vitanza

Evolutionary variational inequalities for competitive financial equilibrium problems

Annamaria Barbagallo, Patrizia Daniele, Antonino Maugeri

MSP46

Variational Methods in Image Processing

Damiana Lazzaro, Sergio Amat

Thursday, June 24 - 11:30-13:30 - Aula C Architettura

Compressed Sensing Image Reconstruction from undersampled frequency acquisitions

Serena Papi

On the strong convergence of a particular linearization of the total variation denoising model

Sergio Amat, Pablo Pedregal

Using a nonlinear multiresolution algorithm in the discretization of a variational problem for image denoising

Sergio Amat, Juan Ruiz, Juan Carlos Trillo

Variational image restoration-decomposition by means of nonlinear multiresolution schemes: First results

Sergio Amat, Juan Ruiz, Juan Carlos Trillo

Analysis of left ventricle echocardiographic movies by variational methods: a dedicated software for ECG and ECHO synchronizations during cardiac cycles

Massimiliano Pedone

MSP47 - I

Topics in Fluid Dynamics

Alessandro Iafrafi

Monday, June 21 - 17:00-19:00 - Aula della Scherma Architettura

A New Mortar Method to Stokes Problem

Eliseo Chacón Vera, Daniel Franco Coronil, Anna Martínez Gavara

Analytical solutions to Stokes' problems

Giorgio Riccardi

On the Navier problem for incompressible Navier—Stokes equations

Antonio Russo, Alfonsina Tartaglione

The Schwarz function approach to the two-dimensional vortex dynamics

Giorgio Riccardi

Solution of free boundary problems: water entry flows

Alessandro Iafrazi

MSP47 - II

Topics in fluid dynamics

Alessandro Iafrazi

Tuesday, June 22 - 11:30-13:30 - Aula A Architettura

A new more consistent model for piezoviscous hydrodynamic lubrication

Guy Bayada, Begoña Cid, Guillermo García Lomba, Carlos Vázquez

Optimal error estimates for a viscosity-splitting scheme for Navier–Stokes equations

María Victoria Redondo Neble, Francisco Guillén González

A Hybrid scheme for shallow water flows with wet/dry fronts

Rosa Donat, Anna Martinez Gavara

Finite Element methods in Primitive Equations of the ocean

Rafael Rodríguez Galván, Francisco Guillén González

MSP48

New Trends in Scientific Computing: Computational Biology

Giovanni Naldi

Wednesday, June 23 - 9:00-11:00 - Aula Magna Architettura

Data Driven Simulations of the Cardiovascular System

Alessandro Veneziani

Multi-Physics Computational Models in Tissue Engineering

Riccardo Sacco

Computational challenges in mechano-biological problems

Dirk Hartmann

Quantifying neurotransmission by taking into account the metrical properties of spike trains

Romain Brasselet, Roland S. Johansson, Angelo Arleo