### PLENARY LECTURES

**Thursday, June 15**  
9:00-11:00  

**Chair:** Martin Ostoja-Starzewski

| U 16821 | PROBABILISTIC LEARNING ON MANIFOLD FOR OPTIMIZATION UNDER UNCERTAINTIES  
| C. Soize, R. Ghanem |

| C 18298 | RISK-BASED LIFE-CYCLE OPTIMAL MANAGEMENT OF INFRASTRUCTURE UNDER MULTI-HAZARDS WITH EMPHASIS ON RESILIENCE AND SUSTAINABILITY  
| Dan M. Frangopol |

| C 17851 | SUBSTRUCTURING: APPLICATION TO UNCERTAINTY ANALYSIS IN STRUCTURAL DYNAMICS  
| Hector Jensen |

**11:00-11:30**  
Coffee Break
**TECHNICAL SESSIONS**

**Thursday, June 15**

11:30-13:00

**Delphi**

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**COMPDYN MS 18 - I: MODELING THE NONLINEAR BEHAVIOR OF STRUCTURES**

*MS Organizers:* Enrico Spacone, Humberto Varum  
*Chair:* Enrico Spacone, Dimos Charmpis

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<td>NONLINEAR FINITE ELEMENT CONTINUUM MACRO-MODELLING OF ADOBE MASONRY - CALIBRATION AND VALIDATION USING EXPERIMENTAL RESULTS</td>
<td>Dimos Charmpis, Rogiros Illampas, Ioannis Ioannou</td>
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<td>C 16995</td>
<td>NUMERICAL INVESTIGATION OF THE IN-PLANE SEISMIC PERFORMANCE OF TIMBER LOG-HAUS WALLS WITH REINFORCED DOVETAILS</td>
<td>C. Bedon, M. Fragiacomo</td>
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<td>C 17845</td>
<td>A MODEL FOR NON-LINEAR DYNAMIC ANALYSIS OF SUB-STANDARD REINFORCED CONCRETE MEMBERS</td>
<td>Dimitrios Zimos, Panagiotis Mergos, Andreas Kappos</td>
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<td>C 18258</td>
<td>REMARKS ON THE SHEAR STRESS DISTRIBUTION WITHIN THE BEAM CROSS-SECTION IN NON-LINEAR REGIME</td>
<td>Giuseppe Balduzzi, Josef Füssl, Ferdinando Auricchio, Elio Sacco</td>
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**Thursday, June 15**

11:30-13:00

**Salon des Roses A**

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**COMPDYN MS 27 - I: ADVANCED NUMERICAL METHODS FOR HISTORICAL MASONRY MONUMENTS PRESERVATION IN SEISMIC ZONE**

*MS Organizers:* Nicola Cavalagli, Francesco Clementi, Gabriele Milani, Constantine Spyarakos, Vagelis Plevris  
*Chair:* Constantine Spyarakos, Nicola Cavalagli

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<td>Constantine C. Spyarakos, Eleni Panou-Papaetheodorou, Dimitrios Kokkinakos</td>
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<td>FAST KINEMATIC LIMIT ANALYSIS OF MASONRY WALLS WITH OUT-OF-PLANE LOADING</td>
<td>Andrea Chiozzi, Gabriele Milani, Nicola Grillanda, Antonio Tralli</td>
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<td>C 17285</td>
<td>COMPARATIVE SEISMIC ASSESSMENT OF A MEDIEVAL MASONRY CHURCH IN SOUTHERN ITALY</td>
<td>Alfredo Cundari, Gabriele Milani, Giuseppe Failla</td>
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<td>NON LINEAR STATIC AND DYNAMIC ANALYSES OF THE AUGUSTUS BRIDGE IN NARNI, ITALY: AN INSIGHT INTO THE MECHANICAL PROPERTIES OF ROMAN CONCRETE</td>
<td>Elisa Bertolesi, Gabriele Milani, Maurizio Acito</td>
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### Thursday, June 15

**11:30-13:00**  
**Salon des Roses B**

#### UNCECOMP MS 5 - I: SURROGATE MODELS FOR UNCERTAINTY QUANTIFICATION, RELIABILITY ANALYSIS AND ROBUST DESIGN

**MS Organizers:** Stefano Marelli, Bruno Sudret, Sankaran Mahadevan, Alex Taflanidis  
**Chair:** Bruno Sudret, Alex Taflanidis

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<td>COMBINING DIMENSIONALITY REDUCTION AND SURROGATE MODELLING FOR UNCERTAINTY QUANTIFICATION</td>
<td>Christos Lataniotis, Stefano Marelli, Bruno Sudret</td>
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<td>U 16675</td>
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<td>Guillaume Perrin</td>
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<td>U 16704</td>
<td>ADAPTIVE OPTIMAL EXPERIMENTAL DESIGNS FOR SPARSE POLYNOMIAL CHAOS EXPANSIONS</td>
<td>Noura Fajraoui, Stefano Marelli, Bruno Sudret</td>
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<td>BAYESIAN CALIBRATION AND PREDICTION OF TWO NESTED PHENOMENA</td>
<td>Sophie Marque-Pucheu, Guillaume Perrin, Josselin Garnier</td>
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<td>AN EFFICIENT METHODOLOGY FOR THE ANALYSIS AND MODELING OF COMPUTER EXPERIMENTS WITH LARGE NUMBER OF INPUTS</td>
<td>Bertrand Iooss, Amandine Marrel</td>
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### Thursday, June 15

**11:30-13:00**  
**Athena**

#### UNCECOMP MS 6 - I: SOFTWARE FOR UNCERTAINTY QUANTIFICATION

**MS Organizers:** Stefano Marelli, Edoardo Patelli, Brian M. Adams, Bruno Sudret  
**Chair:** Stefano Marelli, Edoardo Patelli

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<td>KEYNOTE: COSSAN SOFTWARE: A MULTIDISCIPLINARY AND COLLABORATIVE SOFTWARE FOR UNCERTAINTY QUANTIFICATION</td>
<td>Edoardo Patelli, Matteo Broggi, Silvia Tolo, Jonathan Sadeghi</td>
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<td>Wolfgang Betz, Jason Papaioannou, Holger Heidkamp, Stephan Gollwitzer, Daniel Straub</td>
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<td>REDUCING RUNTIME OF NON-INTRUSIVE UQ SIMULATIONS BY WORK PACKAGE STRATEGIES USING HPC, CHAOSPY, AND MPI4PY</td>
<td>Florian Künzner, Tobias Neckel, Hans-Joachim Bungartz</td>
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<td>INTRODUCTION TO UNCERTAINTY QUANTIFICATION PYTHON LABORATORY (UQ-PYL) – A TOOLBOX FOR PARAMETRIC UNCERTAINTY ANALYSIS OF COMPLEX DYNAMICAL MODELS</td>
<td>Chen Wang, Qingyun Duan</td>
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#### Nafsika A

**COMPDYN MS 25 - I: COMPUTATIONAL STRATEGIES FOR THE SEISMIC ASSESSMENT OF CULTURAL HERITAGE MASONRY STRUCTURES**

**MS Organizers:** Giovanni Castellazzi, Serena Cattari, Daniele Ferretti, Stefano de Miranda  
**Chair:** Serena Cattari

**C 17917** SEISMIC ASSESSMENT OF COMPLEX ASSETS THROUGH NONLINEAR STATIC ANALYSES: THE FORTRESS IN SAN FELICE SUL PANARO HIT BY THE 2012 EARTHQUAKE IN ITALY  
*Stefania Degli Abbati, Antonio Maria D’Altri, Daria Ottonelli, Giovanni Castellazzi, Serena Cattari, Stefano De Miranda, Sergio Lagomarsino*

**C 17049** SEISMIC ASSESSMENT OF A MONUMENTAL MASONRY CONSTRUCTION: THE ROCCA ALBORNOZIANA OF SPOLETO  
*Giulio Castori, Antonio Borri, Marco Corradi, Alessandro De Maria, Romina Sisti*

**C 17156** DYNAMIC BEHAVIOUR OF THE SAN FELICE SUL PANARO FORTRESS: EXPERIMENTAL TESTS AND MODEL UPDATING  
*Marianna Forghieri, Elisa Bassoli, Loris Vincenzi*

**C 17367** DYNAMIC SIMULATION OF AN IRREGULAR MASONRY BUILDING WITH DIFFERENT REHABILITATION METHODS APPLIED TO TIMBER FLOORS  
*Davide Trutalli, Luca Marchi, Roberto Scotta, Luca Pozza*

#### Nafsika B

**COMPDYN MS 4: VIBRATION ENERGY HARVESTING**

**MS Organizers:** Sondipon Adhikari, Anas Batou  
**Chair:** Sondipon Adhikari, Anas Batou

**C 18017** KEYNOTE: OPTIMAL PROPERTIES OF LOCAL DEVICES ON FLEXIBLE STRUCTURES  
*Steen Krenk*

**C 17887** KEYNOTE: EXTENSION OF THE FIXED-POINT METHOD FOR THE DESIGN OF GENERAL VISCOELASTIC TMDS  
*Anas Batou, Sondipon Adhikari*

**C 18162** TUNING THE RESONANCE FREQUENCY OF A PIEZOELECTRIC VIBRATION BASED ENERGY HARVESTER USING AN ELECTROMAGNETIC FORCE  
*Hadi Madinei, Hamed Haddad Khodaparast, Sondipon Adhikari, Michael Friswell*

**C 17603** ENERGY HARVESTING IN A NONLINEAR SYSTEM UNDER HARMONIC AND RANDOM EXCITATIONS  
*Tiago Leite Pereira, Aline Souza De Paula, Adriano Todorovic Fabro, Marcelo Amorim Savi*
**Thursday, June 15**

**11:30-13:00**

### Nefeli A

**COMPDYN MS 22 - I: VIRTUAL CITIES FOR REAL-WORLD CRISIS MANAGEMENT AND RESILIENCE ASSESSMENT OF COMMUNITIES AND INFRASTRUCTURES**

*MS Organizer:* Gian Paolo Cimellaro, Steve Mahin

*Chair:* Gian Paolo Cimellaro, Steve Mahin

**C 18001** KEYNOTE: A DATA INTEGRATION FRAMEWORK FOR URBAN AREA DISASTER SIMULATIONS

*Hideyuki O-Tani, Jian Chen, Kohei Fujita, Muneo Hori*

**C 18175** MODELING AIRPORT EVACUATION UNDER EMERGENCY USING AGENT-BASED MODELS

*Gian Paolo Cimellaro, Gerardo Leo, Steve Mahin*

**C 18269** VIRTUAL CITY FOR WATER DISTRIBUTION RESEARCH IN CRISIS MANAGEMENT

*Marzia Bianco, Gian Paolo Cimellaro, Sean Wilkinson*

**C 18264** EXPLORING SIMULATION TOOLS FOR URBAN SEISMIC ANALYSIS AND RESILIENCE ASSESSMENT

*Gian Paolo Cimellaro, Marco Domaneschi, Steve Mahin, Gianluca Scutiero*

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### Nefeli B

**COMPDYN RS 17 - I: REPAIR AND RETROFIT OF STRUCTURES**

*Chair:* Stephanos E. Dritsos

**C 17710** COMPARING EN1998-3 AND KAN.EPE. MODELS FOR RETROFITTING REINFORCED CONCRETE COLUMNS WITH INADEQUATE DUCTILITY

*Nefeli V. Peponi, Stephanos E. Dritsos, Sotiria N. Athanasopoulou*

**C 17566** EXPERIMENTAL ASSESSMENT OF CARBON FIBER JACKETING OF STEEL PLATES

*Salvatore Sessa, Ferdinando Toraldo, Francesco Marmo, Daniele Masi, Luciano Rosati*

**C 17175** RATIONAL SEISMIC RETROFITTING OF RC STRUCTURES BASED ON GENETIC ALGORITHMS

*Roberto Falcone, Ciro Faella, Carmine Lima, Enzo Martinelli*

**C 18007** PREFABRICATED RESPONSIVE DIAGRIDs FOR HOLISTIC RENOVATION OF EXISTING MID-RISE RC BUILDINGS

*Simone Labò, Chiara Passoni, Alessandra Marini, Andrea Belleri, Guido Camata, Paolo Riva, Enrico Spacone*

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### Alpha

**COMPDYN MS 5 - I: PERIODICITY-INDUCED EFFECTS AND METHODS IN STRUCTURAL DYNAMICS**

*MS Organizer:* Sergey Sorokin

*Chair:* Sergey Sorokin

**C 17631** KEYNOTE: ON WAVE PROPAGATION THROUGH REGULAR AND IRREGULAR MATERIAL FORMATIONS WITH PROPERTIES PERIODIC IN SPACE-TIME

*Konstantin Lurie*

**C 16878** APPLICATION OF THE WAVE FINITE ELEMENT APPROACH TO THE STRUCTURAL FREQUENCY RESPONSE OF STIFFENED STRUCTURES

*Fabrizio Errico, Mohamed Ichchou, Sergio De Rosa, Olivier Bareille*
**C 17179** A WAVE FINITE ELEMENT STRATEGY TO COMPUTE THE DYNAMIC FLEXIBILITY MODES OF STRUCTURES WITH CYCLIC SYMMETRY AND ITS APPLICATION TO DOMAIN DECOMPOSITION  
*Jean-Mathieu Mencik*

**Thursday, June 15**  
**11:30-13:00**  
**Gamma**

**COMPDYN RS 33 - I: STEEL STRUCTURES**  
*Chair:* Peter Knoedel

**C 17313** DETAILED FEM ANALYSIS FOR FULL SCALE STEEL STRUCTURE CONSIDERING FRACTURE OF BEAM ENDS  
*Yasunori Mizushima, Yoichi Mukai, Tomoharu Saruwatari*

**C 17344** MASS VARIATION WITH DISSIPATIVE STEEL STRUCTURES UNDER SEISMIC LOADS  
*Peter Knoedel, Thomas Ummenhofer*

**C 17365** NUMERICAL STUDY ON ELASTO-PLASTIC BEHAVIOR OF PIPE-SECTIONED PIER-PILE INTEGRAL STEEL STRUCTURE  
*Takayuki Omori, Akira Kasai, Rei Kohara*

**C 17542** FINITE ELEMENT ANALYSES ON SEISMIC RESPONSE OF PARTIAL STRENGTH EXTENDED STIFFENED JOINTS  
*Roberto Tartaglia, Mario D’Aniello, Raffaele Landolfo, Gian Andrea Rassati, James Swanson*

**C 18343** THE EFFECT OF NUMBER AND LOCATION OF BRACED FRAMES ON COLUMN BEHAVIOR OF THE DUAL STEEL STRUCTURAL SYSTEM (MRF AND EBF)  
*Sajjad Mohammadi, Abdolreza S. Mohdad, Alireza Faroughi*

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**Thursday, June 15**  
**11:30-13:00**  
**Epsilon**

**UNCECOMP MS 3 - I: MULTISCALE ANALYSIS AND DESIGN OF RANDOM HETEROGENEOUS MEDIA**  
*MS Organizers:* George Stefanou, Dimitrios Savvas, Vissarion Papadopoulos  
*Chair:* George Stefanou, Vissarion Papadopoulos

**U 17129** KEYNOTE: A COMPARISON STUDY OF STATISTICAL RECONSTRUCTION ALGORITHMS FOR HETEROGENEOUS MATERIAL MODELLING  
*Chenfeng Li, Shaoqing Cui*

**U 16700** STOCHASTIC MODELING OF OGDEN STRAIN ENERGY FUNCTIONS FOR UNCERTAINTY QUANTIFICATION: APPLICATION TO SOFT BIOLOGICAL TISSUES  
*Brian Staber, Johann Guilleminot*

**U 16731** PROBABILITY REDUCED-ORDER MODELING FOR STOCHASTIC PARTIAL DIFFERENTIAL EQUATIONS  
*Constantin Grigo, Phaedon-Stelios Koutsourelakis*

**U 16887** MULTISCALE STOCHASTIC ANALYSIS OF A RESIN STRUCTURE MANUFACTURED BY THE FDM METHOD  
*Sei-Ichiro Sakata*

**U 17112** GENERATION OF RANDOM MATERIAL PROPERTY FIELDS BASED ON MICROSTRUCTURE  
*George Stefanou, Dimitrios Savvas, Manolis Papadrakakis*
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<td><strong>COMPDYN MS 21: GROUND-BORNE NOISE AND VIBRATIONS DUE TO TRAFFIC: PREDICTION AND MITIGATION</strong>&lt;br&gt; <em>MS Organizers:</em> Pedro Alves Costa, Mohammed Hussein&lt;br&gt; <em>Chair:</em> Evangelos Ntotsios</td>
<td>C 16921 THE EFFECT OF TRACK UNEVENNESS CORRELATION ON RAILWAY INDUCED GROUND VIBRATION&lt;br&gt; <strong>Evangelos Ntotsios</strong>, David Thompson, Mohammed Hussein</td>
<td>C 17137 GROUND VIBRATION GENERATED BY THE PASSING OF A TRUCK ON A SPEED BUMP&lt;br&gt; <strong>Loïc Ducarne</strong>, Daniel Ainalis, Georges Kouroussis</td>
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<td>Suite 213</td>
<td><strong>COMPDYN MS 32: EXTREME DYNAMICS</strong>&lt;br&gt; <em>MS Organizers:</em> Sakdirat Kaewunruen, Qingming Li, Alex M Remennikov&lt;br&gt; <em>Chair:</em> Sakdirat Kaewunruen</td>
<td>C 16725 THE EFFECT OF HIGH IMPACT WHEELS ON RAIL FAILURE&lt;br&gt; <strong>Harry Tournay</strong>, Semih Kalay</td>
<td>C 17732 DYNAMIC RESPONSES OF RAILWAY ULTRA-HIGH-STRENGTH CONCRETE SLEEPERS UNDER EXTREME IMPACT LOADING&lt;br&gt; <strong>Sakdirat Kaewunruen</strong>, Alex Remennikov, Shintaro Minoura</td>
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#### COMPDYN MS 36: VEHICLE BRIDGE INTERACTION DYNAMICS AND ITS APPLICATION FOR DRIVE-BY BRIDGE HEALTH MONITORING

**MS Organizers:** Abdollah Malekjafarian, Yeong-Bin Yang  
**Chair:** Abdollah Malekjafarian

**C 17763** ON THE ESTIMATION OF BRIDGE MODE SHAPES FROM DRIVE-BY MEASUREMENTS  
*Abdollah Malekjafarian, Eugene Obrien*

**C 17737** USING AN INSTRUMENTED VEHICLE TO ESTIMATE SURFACE ROUGHNESS OF A BRIDGE  
*Ying Zhan, Francis T.K. Au*

**C 18167** FILTERED ACCELERATION MEASUREMENTS AS INDICATORS OF BRIDGE CONDITION  
*Eugene J. Obrien, Paul Fitzgerald, Abdollah Malekjafarian*

**C 18531** ESTIMATION OF BRIDGE FREQUENCIES FROM THE VIBRATION RESPONSE OF A MOVING VEHICLE USING AN INTEGRATED VEHICLE-BRIDGE INTERACTION ANALYSIS  
*Nan Jin, Themelina Paraskeva, Elias Dimitrakopoulos, Lambros Katafygiotis*

#### COMPDYN RS 15 - I: PERFORMANCE-BASED EARTHQUAKE ENGINEERING

**Chair:** Paolo Castaldo

**C 16851** SEISMIC RELIABILITY-BASED DESIGN OF PERFECTLY ELASTOPLASTIC STRUCTURES ISOLATED BY FPS  
*Paolo Castaldo, Bruno Palazzo, Tatiana Ferrentino*

**C 16852** SEISMIC RELIABILITY-BASED DESIGN OF INELASTIC STRUCTURES WITH DIFFERENT VALUES OF THE POST-YIELDING STIFFNESS ISOLATED BY FPS  
*Paolo Castaldo, Bruno Palazzo, Gaetano Alfano, Mario Francesco Palumbo*

**C 17468** INFLUENCE FACTORS FOR THE SIMPLIFIED ASSESSMENT OF MAXIMUM LATERAL SEISMIC DEFORMATIONS IN ITALIAN MULTISTOREY RC BUILDINGS  
*Marco Gaetani D’Aragona, Maria Polese, Andrea Prota*

**C 18115** PROCESSING OF 3D OPTICAL MOTION DATA OF SHAKING TABLE TESTS: FILTERING OPTIMIZATION AND MODAL ANALYSIS  
*Ivan Roselli, Daniela Paolini, Marialuisa Mongelli, Gerardo De Canio, Gianmarco De Felice*

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13:00-14:30  
Lunch Break
## TECHNICAL SESSIONS

### Thursday, June 15
14:30-16:30

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14:30-16:30

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<td><strong>TRADITIONAL MASONRY ARCHES AND DOMES WITH FICTILE TUBULES IN MEDITERRANEAN SEISMIC AREAS: ADVANCED NUMERICAL MODELS AND EXPERIMENTATION</strong></td>
<td>Simone Tiberti, Carmelo Scuro, Rosamaria Codispoti, Renato Sante Olivito, Gabriele Milani</td>
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<td><strong>OUT-OF-PLANE DYNAMIC RESPONSE OF TUFF MASONRY WALLS: SHAKING TABLE TESTING AND NUMERICAL SIMULATIONS</strong></td>
<td>Daniela Addessi, Enrico Cappelli, Cristina Gatta, Fabrizio Vestroni</td>
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<td><strong>FINITE ELEMENT MICRO-MODELING FOR THE CHARACTERIZATION OF INCLINED HEAD JOINTS ARCHAEOLOGICAL MASONRY: THE CASE OF VILLA DIOMEDE IN POMPEII</strong></td>
<td>Matteo Salvalaggio, Pere Roca, Maria Rosa Valluzzi, Filippo Lorenzoni</td>
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### Dynamic Monitoring and Nonlinear Analysis of the Dome of the Basilica of S. Maria degli Angeli in Assisi

_Nicola Cavalagli, Luca Botticelli, Massimiliano Gioffrè, Vittorio Gusella, Filippo Ubertini_

**Thursday, June 15**  
14:30-16:30  
Salon des Roses B

#### UNCECOMP MS 5 - II: Surrogate Models for Uncertainty Quantification, Reliability Analysis and Robust Design

**MS Organizers:** Stefano Marelli, Bruno Sudret, Sankaran Mahadevan, Alex Taflanidis  
**Chair:** Alex Taflanidis, Stefano Marelli

- **U 17031**  
  **Keynote:** Sensitivity Analysis on a Shoestring: How Low Can We Go with Surrogate Models?  
  _William Becker_

- **U 16783**  
  Variance-Based Sensitivity Indices from Low-Rank Tensor Approximations with Polynomial Bases  
  _Katerina Konakli, Bruno Sudret_

- **U 16925**  
  Adaptive Emulation-Based Reliability Analysis  
  _P.O. Hristov, F.A. Diazdelao, K.J. Kubiat, U. Farooq_

- **U 16927**  
  Uncertainty Quantification in Systems of Solvers  
  _Francois Sanson, Olivier Le Maitre, Pietro Marco Congedo_

- **U 16928**  
  Adaptive Refinement of the Design of Experiment for Metamodels Through Anisotropic Mesh Adaptation  
  _Andrea Francesco Cortesi, Ghina Jannoun, Pietro Marco Congedo_

### Experimental Measurements and Numerical Simulation on Problems in the Field of Earthquake - Seismic Performance of R.C. and Pre-Cast Structures

**MS Organizers:** George Manos  
**Chair:** George Manos

- **C 16891**  
  Experimental Measurements and Numerical Simulation of Novel Anchoring Devices for Open Hoop Fiber Reinforcing Polymer Strips Used in the Shear Upgrade of R/C T-Beams  
  _George Manos, Kostas Katakalos, G. Mpalaskas_

- **C 16892**  
  Experimental Measurements and Numerical Non-Linear Simulation of the In-Plane Behaviour of R/C Frames with Masonry Infills Under Cyclic Earthquake-Type Loading  
  _George Manos, Vasilios Soulis_

- **C 17601**  
  Observed Behaviour of an Industrial Complex with Pre-Cast R/C Structural Members Subjected to the Athens 1999 Earthquake - Numerical Simulation of Its Response  
  _John Mpoufidis, Dimitrios Mpoufidis, George Manos_

- **16890**  
  Cyclic Earthquake-Type Performance of One-Bay Single-Storey Reinforced Concrete (R/C) Frames Ret rofited with an Encased R/C Panel  
  _George Manos, Vasilios Soulis, Kostas Katakalos, George Koidis, M. Theofanous_
### Day 1 – Thursday, June 15

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<td>Olga Markogiannaki, Nikolaos Orologopoulos, Ioannis Tegos</td>
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#### Thursday, June 15 14:30-16:30 Nafsika A

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<td>MS Organizers: Giovanni Castellazzi, Serena Cattari, Daniele Ferretti, Stefano de Miranda Chair: Serena Cattari</td>
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<td>Elisa Bertolesi, Gabriele Milani, Siro Casolo</td>
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<td>Claudia Casapulla, Luca Umberto Argiento</td>
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<td>Eser Çaktı, Emrullah Dar, Türay Ercan, Gülen Uncu</td>
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<td>C 18551</td>
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<td>Francesco Marmo, Daniele Masi, Salvatore Sessa, Ferdinando Toraldo, Luciano Rosati</td>
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<td>KEYNOTE: WAVES ON RANDOM FIELDS WITH FRACTAL AND HURST EFFECTS</td>
<td>Vinesh V. Nishawala, Martin Ostoj-Starzewski</td>
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**U 16898**  
FINITE ELEMENT MODEL DEVELOPED AND MODAL ANALYSIS OF LARGE SCALE STEAM TURBINE ROTOR: QUANTIFICATION OF UNCERTAINTIES AND MODEL UPDATING  
*Dimitrios Giagopoulos, Alexandros Arailopoulos, Ilias Zacharakis, Eleni Pipili*

**U 16912**  
STOCHASTIC NONLINEAR MODEL UPDATING: METHOD AND APPLICATION  
*Mohammad Tajik, Hamed Haddad Khodaparast, Hamid Ahmadian, Michael Friswell*

**Thursday, June 15**  
14:30-16:30  
Nefeli A

**COMPDYN MS 22 - II: VIRTUAL CITIES FOR REAL-WORLD CRISIS MANAGEMENT AND RESILIENCE ASSESSMENT OF COMMUNITIES AND INFRASTRUCTURES**  
*MS Organizers: Gian Paolo Cimellaro, Steve Mahin*  
*Chair: Marco Domeneschi, Steve Mahin*

**C 18180**  
KEYNOTE: RESILIENCE ASSESSMENT FOR THE BUILT ENVIRONMENT OF A VIRTUAL CITY  
*Sebastiano Marasco, Ali Zamani-Noori, Gian Paolo Cimellaro*

**C 17833**  
PHYSICS-BASED FIRE FOLLOWING EARTHQUAKE SIMULATION CONSIDERING BUILDING SEISMIC DAMAGE  
*Xiang Zeng, Xinzheng Lu, Zhen Xu, Qingle Cheng*

**C 17931**  
A SIMPLIFIED APPROACH FOR THE SEISMIC ASSESSMENT OF HOSPITAL NETWORKS  
*Stefania Viti, Marco Tanganelli, Maria Pianigiani, Gian Paolo Cimellaro*

**C 17232**  
PROBABILISTIC QUANTIFICATION OF COMMUNITY RESILIENCE USING DISCRETE EVENT SIMULATION  
*Hossein Nasrazadani, Mojtaba Mahsuli*

**C 17970**  
AN OBJECT-ORIENTED SOFTWARE FRAMEWORK FOR SIMULATING THE CRITICAL FUNCTIONS OF A CITY BEFORE AND AFTER A DISASTER  
*Rodrigo Costa, Terje Haukaas, Stephanie Chang*

**C 18465**  
VIRTUAL REALITY OF EARTHQUAKE GROUND MOTIONS FOR EMERGENCY RESPONSE  
*Ting Lin*

**Thursday, June 15**  
14:30-16:30  
Nefeli B

**COMPDYN MS 9 - I: WORKSHOP OF THE INNOSEIS PROJECT- INNOVATIVE ANTI-SEISMIC DEVICES FOR BUILDINGS**  
*MS Organizer: Ioannis Vayas*  
*Chair: Ioannis Vayas*

**C 18031**  
VALORIZATION OF INNOVATIVE ANTI-SEISMIC DEVICES  
*Ioannis Vayas, Pavlos Thanopoulos, Panagiotis Tsarpalis*

**C 16929**  
3D NUMERICAL SIMULATION OF STOREY ISOLATION ON TALL BUILDINGS  
*Davide Forcellini, Luca Gallanti*

**C 17470**  
FINITE ELEMENT MODELLING OF DETACHABLE SHORT LINKS  
*Mariana Zimbru, Mario D’Aniello, Aurel Stratan, Raffaele Landolfo, Dan Dubina*
C 17524  FINITE ELEMENT ANALYSES ON FREE FROM DAMAGE SEISMIC RESISTING BEAM-TO-COLUMN JOINTS  
Mario D’Aniello, Mariana Zimbru, Raffaele Landolfo, Massimo Latour, Gian Vittorio Rizzano, Vincenzo Piluso

C 17857  PERFORMANCE ASSESSMENT OF CONCENTRICALLY BRACED FRAMES WITH MODIFIED BRACES DEPENDING ON THE APPLIED BEAM-COLUMN JOINTS  
Tzvetan Georgiev, Dimo Zhelev, Lora Raycheva

C 17864  DESIGN AND ASSESSMENT OF SEISMIC RESISTANT BUILDINGS COMPRISING DISSIPATIVE U-DEVICES  
Herve Degee, Gaochuang Cai, Andre Plumier

C 18102  SEISMIC PROTECTION OF STRUCTURES USING A HYBRID SYSTEM: BUCKLING REINFORCED BRACE AND MAGNETO RHEOLOGICAL DAMPER  
Cristian Vulcu, Dan Dubina

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COMPDYN MS 5 - II: PERIODICITY-INDUCED EFFECTS AND METHODS IN STRUCTURAL DYNAMICS  
MS Organizer: Sergey Sorokin  
Chair: Konstantin Lurie

C 17590  CYLINDRICAL WAVES IN STRUCTURES PERIODIC IN POLAR COORDINATES  
Alexander Hvato, Sergey Sorokin

C 17400  SENSITIVITY ANALYSIS OF THE FREE WAVE CHARACTERISTICS OF PERIODIC STRUCTURES  
Jie Zhang, Guido De Roeck, Edwin Reynders, Geert Lombaert

C 17795  HARMONIC AND RANDOM VIBRATIONS OF AN ANISOTROPIC BEAM  
Petr E. Tovstik, Tatiana M. Tovstik, Natalia V. Naumova

C 17605  HOMOGENIZATION OF PERIODIC BUILDINGS: REFINED BEAM THEORIES AND EFFECTS OF THE RESONANCE OF THE FLOORS  
Celine Chesnais, Claude Boutin, Stephane Hans

C 17374  VIBRATIONS IN A ROD WITH INTERNAL PERIODIC STRUCTURE  
Dmitry Indeitsev, Yulia Mochalova
### Thursday, June 15

**Gamma**

**COMPDYN RS 33 - II: STEEL STRUCTURES**

*Chair:* Akira Kasai

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<td>NUMERICAL STUDY ON COMPARISON BETWEEN DUCTILITY OF UNSTIFFENED BOX SECTIONED STEEL STUB COLUMNS AND SIMPLY SUPPORTED STEEL PLATES</td>
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<td>Elide Nastri</td>
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<td>C 18380</td>
<td>SECONDARY BRACINGS &amp; VARIED CONFIGURATION OF DIAGRID STRUCTURAL SYSTEMS</td>
<td>Vijay Kumar, Saraswati Setia</td>
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**Epsilon**

**COMPDYN RS 13 - I: OPTIMUM DESIGN AND CONTROL IN STRUCTURAL DYNAMICS AND EARTHQUAKE ENGINEERING**

*Chair:* Georgios Stavroulakis

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<td>SPACECRAFT FEM UPDATE USING MULTI-OBJECTIVE OPTIMISATION AND SURROGATE MODELS</td>
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<td>ON THE USE OF GENETIC ALGORITHMS TO ASSESS THE SEISMIC RESISTANCE OF PLANAR FRAME STRUCTURES</td>
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<td><strong>UNCECOMP MS 10: CURRENT TOPICS IN UNCERTAINTY CHARACTERIZATION</strong>&lt;br&gt;&lt;br&gt;<strong>MS Organizers:</strong> D. T. Hristopulos, I. C. Tsantili&lt;br&gt;&lt;br&gt;<strong>Chair:</strong> Dionissios Hristopulos, Ivi Tsantili</td>
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<td><strong>U 16786</strong> CONSTRUCTION OF SPACE-TIME COVARIANCE FUNCTIONS BASED ON THE SOLUTION OF A LANGEVIN EQUATION AND SPACE TRANSFORMS&lt;br&gt;&lt;br&gt;<em>Dionissios Hristopulos, Ivi Tsantili</em></td>
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<td><strong>U 16812</strong> UNCERTAINTY QUANTIFICATION ALGORITHMS FOR META-MATERIALS&lt;br&gt;&lt;br&gt;<em>Ivi C. Tsantili, Min Hyung Cho, Wei Cai, George Em. Karniadakis</em></td>
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<td><strong>C 18285</strong> GENERATING ARTIFICIAL TIME HISTORIES USING A NEW COMPUTER-BASED ENVIRONMENTAL PLATFORM: OPENSIGNAL&lt;br&gt;&lt;br&gt;<em>Marco Baglio, Sebastiano Marasco, Gian Paolo Cimellaro</em></td>
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<td><strong>C 18382</strong> NUMERICAL SIMULATIONS WITH CUSHIONING MATERIAL INSTALLED BEHIND THE RETAINING WALL FOR RESILIENT STRUCTURES&lt;br&gt;&lt;br&gt;<em>Kazuhiro Kaneda, Hiroyuki Yamazaki, Satoru Ohtsuka</em></td>
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<td><strong>C 17302</strong> IMPEDANCE FUNCTIONS OF ADJACENT STRIP FOOTINGS&lt;br&gt;Vasiliki Terzi</td>
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| **COMPDYN MS 24 - I: SEISMIC INPUT FOR BRIDGES: FROM SCENARIO EARTHQUAKES TO NONSYNCHRONOUS INPUT**<br>MS Organizers: Camillo Nuti, Yin Gu, Ivo Vanzi, Anastasios Sextos<br>Chair: Nikolaos Bakas |
| **C 17008** SPATIAL VARIABILITY OF EARTHQUAKE GROUND MOTION FROM DENSE-ARRAY OBSERVATIONS AND 3D NUMERICAL SIMULATIONS<br>*Chiara Smerzini*, Roberto Paolucci |
| **C 17335** SEISMIC RESPONSE OF A HIGH-PIER BRIDGE SUBJECTED TO OBLIQUE INCIDENCE WAVES<br>Yin Gu, **Hongxiang Guo**, Weidong Zhou |
DAY 1 – THURSDAY, JUNE 15

C 17076  A NEW CODE-BASED SIMPLIFIED APPROACH FOR CONSIDERING MULTI-SUPPORT EXCITATION IMPACT ON BRIDGES
Savvas Papadopoulos, Anastasios Sextos

C 17235  THE EFFECT OF MULTI-ANGLE, SPATIALLY VARIABLE SEISMIC MOTIONS ON CABLE-STAYED BRIDGES
Eleftheria Efthymiou, Alfredo Camara

16:30-17:00
Coffee Break
### TECHNICAL SESSIONS

#### Thursday, June 15 17:00-19:00  Delphi

**COMPDYN MS 18 - III: MODELING THE NONLINEAR BEHAVIOR OF STRUCTURES**

*MS Organizers:* Enrico Spacone, Humberto Varum  
*Chair:* Enrico Spacone, Anastasios Sextos

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<td>AN EMPIRICAL-BASED APPROACH FOR MODELING AND ASSESSMENT OF RC COLUMNS WITH_plain BARS</td>
<td>Gerardo M. Verderame, Paolo Ricci</td>
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<td>CYCLIC RESPONSE AND NONLINEAR MODELING OF EXTERIOR UNREINFORCED RC BEAM-COLUMN JOINTS WITH_plain LONGITUDINAL BARS</td>
<td>Maria Teresa De Risi, Paolo Ricci, Gerardo Mario Verderame</td>
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<td>EMPIRICAL UNREINFORCED MASONRY INFILL MACRO-MODEL ACCOUNTING FOR_IN-PLANE/OUT-OF-PLANE INTERACTION</td>
<td>Mariano Di Domenico, Paolo Ricci, Gerardo M. Verderame</td>
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<td>AXIALLY EQUILIBRATED DISPLACEMENT-BASED BEAM ELEMENT: IMPLEMENTATION IN OPENSEES AND APPLICATION TO DYNAMIC ANALYSIS OF STRUCTURES</td>
<td>Danilo Tarquini, João Pacheco De Almeida, Katrin Beyer</td>
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<td>COMPUTATIONALLY EFFICIENT MODELING OF THE CYCLIC BEHAVIOR OF REINFORCED CONCRETE STRUCTURAL MEMBERS UNDER ULTIMATE LIMIT STATE CONDITIONS</td>
<td>Christos Mourlas, Manolis Papadrakakis, George Markou</td>
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#### Thursday, June 15 17:00-19:00  Salon des Roses A

**COMPDYN MS 27 - III: ADVANCED NUMERICAL METHODS FOR HISTORICAL MASONRY MONUMENTS PRESERVATION IN SEISMIC ZONE**

*MS Organizers:* Nicola Cavallaghi, Francesco Clementi, Gabriele Milani, Constantine Spyrrakos, Vagelis Plevris  
*Chair:* Gabriele Milani, Nicola Cavallaghi

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<td>SEISMIC MODELLING AND ANALYSIS OF MASONRY BUILDING IN AGGREGATE: A CASE STUDY</td>
<td>Siro Casolo, Carlo Alberto Sanjust, Giuseppina Uva, Vito Diana</td>
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<td>ON THE USE OF POINT CONTACT MODELS FOR COLLAPSE MECHANISM AND DYNAMIC ANALYSIS OF MASONRY STRUCTURES</td>
<td>Francesco Portiol, Lucrezia Cascini, Raffaele Landolfo</td>
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<td>IN-PLANE BEHAVIOUR OF EARTHEN MATERIALS: A NUMERICAL COMPARISON BETWEEN ADOBE MASONRY, RAMMED EARTH AND COB</td>
<td>Lorenzo Miccoli, Rui A. Silva, Angelo Garofano, Daniel V. Oliveira</td>
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<td>C 17772</td>
<td>MODELLING AND ANALYSIS OF AN ANCIENT COMPLEX UNDER EARTHQUAKE LOADING: THE CASE STUDY OF SAN CIRIACO IN ANCONA</td>
<td>Francesco Clementi, Silvia Presciutti, Stefano Lenci</td>
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C 18271  A RECONSTRUCTION HYPOTHESIS OF COLLAPSED ARCHAEOLOGICAL MASONRY BARREL VAULTS EMPLOYING FRICITIONAL BEARINGS, WITH APPLICATION TO THE CASE STUDY OF THE GALLERIA DELLE VOLTE CROLLATE, IN ROME
Enrica Di Miceli, Vincenzo Bianco, Giorgio Monti, Maria Grazia Filetici

C 18082  SEISMIC ASSESSMENT OF CULTURAL HERITAGE: NONLINEAR 3D ANALYSES OF “SANTA MARIA DELLA CARITÀ” IN ASCOLI PICENO
Francesco Monni, Francesco Clementi, Enrico Quaglierini, Ersilia Giordano, Stefano Lenci

Thursday, June 15
17:00-19:00
Salon des Roses B

UNCECOMP MS 5 - III: SURROGATE MODELS FOR UNCERTAINTY QUANTIFICATION, RELIABILITY ANALYSIS AND ROBUST DESIGN
MS Organizers: Stefano Marelli, Bruno Sudret, Sankaran Mahadevan, Alex Taflanidis
Chair: Stefano Marelli, Bruno Sudret

U 16989 KEYNOTE: AN ADAPTIVE KRIGING BASED APPROACH TO ROBUST OPTIMIZATION
Sylvain Dubreuil, Christian Gogu, Nathalie Bartoli, Thierry Lefebvre

U 16974 A GRADIENT BASED LOCAL MULTIVARIATE INTERPOLATION REGRESSION SURROGATE MODEL FOR SCATTERED DATA SETS
Nassim Razaaly, Gianluca Iaccarino, Pietro Marco Congedo

U 17154 ADAPTIVE KRIGING SEQUENTIAL STOCHASTIC SAMPLING AND ITS APPLICATION IN RARE EVENT SIMULATION
Jize Zhang, Alexandros Taflanidis

U 17172 A GAUSSIAN PROCESS MODELING APPROACH FOR LARGE DATASET AND HIGH DIMENSIONAL PROBLEMS
Wei Chen

U 16931 A NOVEL FRAMEWORK FOR MULTI-OBJECTIVE OPTIMIZATION UNDER UNCERTAINTIES: AN IMPRECISE PARETO FRONT AND EVOLUTIVE METAMODEL COUPLING
Mickaël Rivier, Pietro Marco Congedo

Thursday, June 15
17:00-19:00
Athena

COMPDYN MS 2 - II: EXPERIMENTAL MEASUREMENTS AND NUMERICAL SIMULATION ON PROBLEMS IN THE FIELD OF EARTHQUAKE - SEISMIC PERFORMANCE OF R.C. AND MASONRY
MS Organizer: George Manos
Chair: Nick Simos

C 18266 ANALYTICAL AND EXPERIMENTAL RESEARCH ON IMPROVEMENT OF THE DUCTILITY OF BUILDINGS’ R/C SEISMIC WALLS THROUGH SLIP PREVENTION WITH THE USE OF STOPPERS
Theodoros Chrysanidis, Sevasti Tegou, Ioannis Tegos, Sofia Spyridonidou

C 18357 INVESTIGATION OF STRENGTHENED MASONRY WALLS MADE OF EARTH BLOCK STRENGTHENED EXTERNALLY WITH GLASS AND STEEL FIBER MESHES UNDER CYCLIC LOADING
Ioanna Papayianni, Christina Batsouka, Konstantinos Katakolas
C 17946  ANALYTICAL AND EXPERIMENTAL RESEARCH ON THE POSSIBILITIES OF ATTAINING A MONOLITHIC CONNECTION WITH EARTHQUAKE RESISTANCE, AESTHETIC AND ECONOMIC ADVANTAGES FOR THE PREFABRICATED BRIDGES
  Ioannis Papaefthymiou, Ilias Papadopoulos, Dimitrios Pesios, Ioannis Tegos

C 19535  UNREINFORCED STONE MASONRY UNDER IN-PLANE STATE OF STRESS FROM GRAVITATIONAL AND SEISMIC ACTIONS. MEASURED AND PREDICTED BEHAVIOUR
  George Manos, Lambros Kotoulas

C 17530  SEISMIC ASSESSMENT OF EXISTING STRUCTURES: CONTRIBUTION OF IN-SITU MEASUREMENTS BY AMBIENT VIBRATIONS IN THE DESIGN OF NUMERICAL MODELS
  Cedric Desprez, Philippe Gueguen

Thursday, June 15
17:00-19:00
Nafsika A

UNCECOMP MS 6 - II: SOFTWARE FOR UNCERTAINTY QUANTIFICATION
  MS Organizers: Stefano Marelli, Edoardo Patelli, Brian M. Adams, Bruno Sudret
  Chair: Stefano Marelli, Edoardo Patelli

U 16740  TOWARDS THE SECOND YEAR MILESTONE: THE UQLAB DEVELOPMENT ROADMAP
  Stefano Marelli, Bruno Sudret

U 16950  ROBUST AND RELIABILITY-BASED DESIGN OPTIMIZATION WITH MODEFRONTIER
  Alberto Clarich, Danilo Di Stefano, Mariapia Marchi, Enrico Rigoni, Rosario Russo

U 16997  NESSGAUSSIAN PROCESS RESPONSE SURFACE MODELING AND GLOBAL SENSITIVITY ANALYSIS USING NESSUS
  John M. McFarland, John A. Dimeo, Barron J. Bichon

U 17143  THE GRAPHICAL USER INTERFACE OF OPENTURNS, A UQ SOFTWARE IN SIMULATION
  Thierry Yalamas, Julien Schueller, Aurélie Ladier, Michaël Baudin, Anne Dutfoy, Anne-Laure Popelin, Anthony Geay

U 17200  UNCERTAINTY QUANTIFICATION IN HEART MECHANICS; IMPACT OF MATERIAL PARAMETER UNCERTAINTY ON GLOBAL DEFORMATION
  Rocio Rodriguez-Cantano, Joakim Sundnes, Marie E. Rognes

U 17215  AERODYNAMIC SHAPE OPTIMIZATION UNDER FLOW UNCERTAINTIES USING NON-INTRUSIVE POLYNOMIAL CHAOS AND EVOLUTIONARY ALGORITHMS
  Athanasios G. Liatsikouras, Varvara G. Asouti, Kyriakos C. Giannakoglou, Guillaume Pierrot, Mustafa Megahed
## DAY 1 – THURSDAY, JUNE 15

### Thursday, June 15
17:00-19:00  
Nafsika B

**UNCECOMP MS 1 - II: UNCERTAINTY QUANTIFICATION IN VIBRATION BASED MONITORING AND STRUCTURAL DYNAMICS SIMULATIONS**

*MS Organizers: Eleni Chatzi, Costas Papadimitrou
*Chair: Vasilis Dertimanis, Dimitrios Giagopoulos*

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<td>A BAYESIAN APPROACH FOR ACTIVE VIBRATION CONTROL AND STRUCTURAL HEALTH ASSESSMENT USING REDUCED ORDER MODELLING</td>
<td>Abhishek Kundu, Pierre Kerfriden</td>
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<td>OPERATIONAL MODAL ANALYSIS OF BRODIE TOWER USING A BAYESIAN APPROACH</td>
<td>Yan-Long Xie, Yi-Chen Zhu, Siu-Kui Au</td>
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<td>U 17092</td>
<td>DATA-DRIVEN IDENTIFICATION, CLASSIFICATION AND UPDATE OF DECISION TREES FOR MONITORING AND DIAGNOSTICS OF WIND TURBINES</td>
<td>Imad Abdallah, Vasilis Dertimanis, Eleni Chatzi</td>
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<td>U 17093</td>
<td>MODEL UPDATING OF A NONLINEAR EXPERIMENTAL VEHICLE USING SUBSTRUCTURING AND UNSCENTED KALMAN FILTERING</td>
<td>Maria Tsalou, Dimitrios Giagopoulos, Vasilis Dertimanis, Eleni Chatzi</td>
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<td>U 17130</td>
<td>RELIABILITY PREDICTION OF FATIGUE DAMAGE ACCUMULATION ON WIND TURBINES</td>
<td>Konstantinos Tatsis, Eleni Chatzi, Eliz-Mari Lourens</td>
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<td>U 17158</td>
<td>UNCERTAINTY PROPAGATION IN NONLINEAR STRUCTURAL DYNAMICS OF GROUND MILITARY VEHICLES</td>
<td>Mathieu Sallin, Jean-Marc Bourinet, David Clair, Michel Fogli</td>
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<td>A MULTISCALE METHOD WITH PATCHES FOR THE PROPAGATION OF LOCALIZED UNCERTAINTIES IN STRUCTURAL DYNAMICS</td>
<td>Florent Pled, Mathilde Chevreuil, Anthony Nouy</td>
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### Thursday, June 15
17:00-19:00  
Nefeli A

**COMPDYN MS 1: ADVANCES IN COMPUTATIONAL STRUCTURAL VIBRATIONS**

*MS Organizers: Evangelos Sapountzakis, Amalia Argyridi
*Chair: Evangelos Sapountzakis*

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<td>R. Sanches, F.M.F. Simões, A. Pinto Da Costa</td>
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<td>SECOND-ORDER TORSIONAL WARPING MODAL ANALYSIS OF THIN-WALLED BEAMS</td>
<td>Justin Murin, Mehdi Aminbaghai, Juraj Hrabovsky, Herbert Mang</td>
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<td>BLAST ANALYSIS: DETERMINATION OF EQUIVALENT STATIC LOAD</td>
<td>Jari Mäkinen, Joshua Fillion, Janne Hautala</td>
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C 17764  PARAMETER OPTIMIZATION OF THE KDAMPER CONCEPT IN SEISMIC ISOLATION OF BRIDGES USING HARMONY SEARCH ALGORITHM
Panagiota Syrimi, Evangelos Sapountzakis, George Tsiatas, Ioannis Antoniadis

C 17866  IMPLEMENTATION OF THE KDAMPER CONCEPT TO WIND TURBINE TOWERS
Konstantinos Kasapakalis, Evangelos Sapountzakis, Ioannis Antoniadis

Thursday, June 15
17:00-19:00
Nefeli B

COMPDYN MS 9 - II: WORKSHOP OF THE INNOSEIS PROJECT - INNOVATIVE ANTI-SEISMIC DEVICES FOR BUILDINGS
MS Organizer: Ioannis Vayas
Chair: Ioannis Vayas

C 17978  DESIGN CRITERIA AND MODELLING OF RE-CENTRING DUAL ECCENTRICALLY BRACED FRAMES
Aurel Stratan, Adriana Chesoan, Dan Dubina

C 18111  SEISMIC DESIGN OF STEEL FRAMES WITH FUSEIS BEAM LINK ENERGY DISSIPATION SYSTEMS
Marius Pinkawa, Helen Bartisch, Simon Schaffrath, Benno Hoffmeister, Markus Feldmann

C 18159  DUAL STEEL FRAMES WITH RE-CENTERING CAPACITY AND REPLACEABLE STEEL SHEAR PANELS
Calin Neagu, Florea Dinu, Dan Dubina

C 18196  SEISMIC BEHAVIOR OF STEEL STRUCTURES EQUIPPED WITH STEEL SELF-CENTERING DEVICES (SSCD)
Francesco Morelli, Andrea Piscini, Walter Salvatore

C 18260  EXCHANGEABLE DISSIPATIVE DEVICES FOR BRACINGS BASED ON TORSIONAL PLASTIFICATION
Benno Hoffmeister, Marius Pinkawa, Christiane Butz

C 18281  Q-FACTOR VERIFICATION OF A 6-STOREY CONCENTRICALLY BRACED FRAME VIA THE INNOSEIS RISK-BASED APPROACH
Dimitrios Vamvatsikos, Konstantinos Bakalis, Stella Pyrza

C 18032  FUSEIS PIN LINKS: INFORMATION BROCHURES AND DESIGN OF CASE STUDY
Panagiotis Tsarpalis, Ioannis Vayas, Pavlos Thanopoulos

C 20856  A PROCEDURE FOR THE ASSESSMENT OF THE BEHAVIOUR FACTOR FOR STEEL MRF SYSTEMS BASED ON PUSHOVER ANALYSIS
Carlo A. Castiglioni, Amin Alavi, Giovanni Brambilla, Alper Kanyilmaz

Thursday, June 15
17:00-19:00
Alpha

COMPDYN MS 5 - III: PERIODICITY-INDUCED EFFECTS AND METHODS IN STRUCTURAL DYNAMICS
MS Organizer: Sergey Sorokin
Chair: Sergey Sorokin

C 17910  WAVE PROPAGATION IN PIPES WITH HELICAL PATTERN
Elisabetta Manconi, Sergey Sorokin, Rinaldo Garziera

C 18112  EFFICIENCY OF NEARLY PERIODIC STRUCTURES FOR MITIGATION OF GROUND VIBRATION
Lars Vabbersgaard Andersen, Andrew Peplow, Paulius Bucinskas
C 18273 LOW-FREQUENCY VIBRATIONS OF THIN CYLINDRICAL SHELL STIFFENED BY RINGS WITH T-SHAPED CROSS-SECTION
Sergei Filippov

C 18305 DYNAMIC TRAPPING AND RELEASE IN ELECTROSTATICALLY ACTUATED BISTABLE LATCHED CURVED MICRO BEAMS
Lior Medina, Rivka Gilat, Slava Krylov

COMPDYN MS 24 - II: SEISMIC INPUT FOR BRIDGES: FROM SCENARIO EARTHQUAKES TO NONSYNCHRONOUS INPUT
MS Organizers: Camillo Nuti, Yin Gu, Ivo Vanzi, Anastasios Sextos
Chair: Camillo Nuti

C 18104 SEISMIC BEHAVIOUR OF ISOLATED RC BRIDGES SUBJECTED TO ASYNCHRONOUS SEISMIC INPUT
Davide Lavorato, Alessandro Vittorio Bergami, Carlo Rago, Hai-Bin Ma, Camillo Nuti, Ivo Vanzi, Bruno Briseghella, Wei-Dong Zhou

C 18098 SURFACE GENERATION OF ASYNCHRONOUS SEISMIC SIGNALS FOR THE SEISMIC RESPONSE ANALYSIS OF BRIDGES
Davide Lavorato, Gabriele Fiorentino, Alessandro Vittorio Bergami, Hai-Bin Ma, Camillo Nuti, Bruno Briseghella, Ivo Vanzi, Wei-Dong Zhou

Thursday, June 15
17:00-19:00
Gammas

COMPDYN RS 4: DYNAMICS OF CONCRETE STRUCTURES
Chair: Nikolaos Bakas

C 16797 SEISMIC BEHAVIOR OF PRESTRESSED PRECAST SHEAR WALL BUILDINGS USING MULTIPLE ROCKING JOINTS
Boya Yang, Xilin Lu

C 18012 DEVELOPMENT OF A CURVILINEAR HYSTERESIS MODEL FOR REINFORCED CONCRETE STRUCTURES
Daisuke Kitagawa, Hisashi Umemura

C 18189 MRFS DESIGNED ACCORDING TO THE THEORY OF PLASTIC MECHANISM CONTROL VS CODE RULES
Roberta Muscati

C 18747 SEISMIC FINITE ELEMENT ANALYSIS OF AN EXISTING OLD CONCRETE STRUCTURE BY USING MULTIFIBER BEAMS: INTRODUCTION OF AN ADAPTIVE PUSHOVER METHOD
Ahmad Omar, Stéphane Grange, Frédéric Dufour

C 17499 INFLUENCE OF RIGID FLOOR ASSUMPTION IN SEISMIC ANALYSIS OF RC EXISTING BUILDINGS
Francesco Porco, Sergio Ruggieri, Domenico Raffaele

C 20526 THEORETICAL AND NUMERICAL FINDINGS ON THE REDUNDANT TORSIONAL STRESSES
Nikolaos Bakas, John Bellos

C 18218 NONLINEAR FEA OF SOIL-STRUCTURE-INTERACTION EFFECTS ON RC SHEAR WALL STRUCTURES
Mohammad Alhamaydeh, George Markou, Dina Saadi
### Thursday, June 15

#### 17:00-19:00

**COMPDYN RS 13 - II: OPTIMUM DESIGN AND CONTROL IN STRUCTURAL DYNAMICS AND EARTHQUAKE ENGINEERING**

*Chair:* Francesca Tropeano

**C 18317** **KEYNOTE:** DYNAMIC RESPONSE CONTROL OF A SUPER TALL BUILDING USING A NEW EDDY-CURRENT TUNED MASS DAMPER AND SITE MEASUREMENTS

*Xilin Lu*

**C 20176** DYNAMIC CONTROL OF RIGID-FAILURES MODES DYNAMIC CONTROL OF RIGID-FAILURES MODES

*Ileana Corbi, Ottavia Corbi, Francesca Tropeano*

**C 18091** TORSIONAL BALANCE OF TWO-WAY ASYMMETRIC PLANS WITH OPTIMAL DISTRIBUTION OF VISCOUS DAMPERS

*Amir Shahmohammadian, Mohammad Reza Mansoori, Mir Hamid Hosseini*

**C 18108** A SEMI-ANALYTICAL MODEL FOR DISSIPATIVE SHEAR LINKS: EXPERIMENTAL TESTS AND NUMERICAL ANALYSES

*Silvia Caprili, Nicola Mussini, Walter Salvatore*

**C 17312** FINITE ELEMENT ANALYSIS OF EXTERNAL RC WIDE BEAM-COLUMN JOINTS PROVIDED WITH DIFFERENT DETAILING SOLUTIONS

*Giuseppe Santarsiero, Angelo Masi*

**C 18225** COLLAPSE CAPACITY PREDICTION OF SDOF SYSTEMS EQUIPPED WITH FLUID VISCOUS DAMPERS

*Zeynab Gharyanpoor, Benyamin Mohebi, Mansoor Yakhchalian*

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### Thursday, June 15

#### 17:00-19:00

**COMPDYN RS 34: MASONRY STRUCTURES**

*Chair:* Vasiliki Nikolopoulou

**C 17526** MODELING FLEXURE-SHEAR FAILURES IN MASONRY-INFILLED RC FRAMES WITH INELASTIC FIBER-BASED FRAME ELEMENTS

*Alexander Kagermanov, Paola Ceresa*

**C 17716** ADVANCED NUMERICAL MODELS FOR THE ANALYSIS OF UNREINFORCED AND STRENGTHENED MASONRY VAULTS

*Valentino Paolo Berardi, Mariella De Piano, Giuseppe Teodosio, Rosa Penza, Luciana Feo*

**C 18105** SEISMIC BEHAVIOR OF A REINFORCED MASONRY INFILL MADE BY AN INNOVATIVE NEW BRICK UNIT: RESULTS OF A SHAKING TABLE TEST

*Elizabeth Vintzileou, Chrissy-Elpida Adami, Vasiliki Palieraki, Charalambos Mouzakis, Lucia Karapitta*

**C 20140** DISCUSSION ON THE RESPONSE OF UNREINFORCED MASONRY TO LOW-AMPLITUDE RECURCIVE LOADS: CASE OF GRONINGEN GAS FIELD

*Dimitrios Dais, Ihsan E. Bal, Eleni Smyrou*

**C 17652** A NEW NUMERICAL PROCEDURE FOR ASSESSING THE DYNAMIC BEHAVIOUR OF ANCIENT MASONRY TOWERS

*Daniele Pellegrini, Maria Girardi, Cristina Padovani, Riccardo Maria Azzara*
### UNCECOMP RS 10: MULTISCALE STOCHASTIC DYNAMICS
*Chair:* Samih Zein

**U 16721** Simulation of a Gaussian Random Field over a 3D Surface  
*Samih Zein, David Dumas*

**U 16769** Data-Driven Probability Density Function Equations for High-Dimensional Stochastic Dynamical Systems  
*Daniele Venturi*

**U 16816** Fourier Integral Operators in Stochastic Structural Analysis  
*Michael Oberguggenberger, Martin Schwarz*

**U 17022** Identification of Variability in Heterogeneous Material Properties Based on Hierarchical Modelling  
*Eliška Janouchová, Anna Kučerová*

### UNCECOMP RS 21: STOCHASTIC OPTIMIZATION METHODS
*Chair:* Konstantinos I. Tifkitsis

**U 16763** Stochastic Multi-Objective Optimisation of Composites Manufacturing Process  
*Konstantinos I. Tifkitsis, Alexandros A. Skordos*

**U 16799** Künzel Model and Boundary Inverse Problem  
*Jan Havelka, Jan Sýkora, Anna Kučerová*

**U 16992** Adjoint-Assisted Multi-Level Approach for Quantifying Geometry-Induced Uncertainties in Robust Aerodynamic Shape Optimisation  
*Pavanakumar Mohanamuraly, Jens-Dominik Mueller*

### COMPDYN RS 22 - II: SOIL-STRUCTURE INTERACTION
*Chair:* Manthos Papadopoulos

**C 18128** Excitation of Structures Near Railway Tracks—Analysis of the Wave Propagation Path  
*Paulius Bucinskas, Lars Vabbersgaard Andersen*

**C 18370** The Influence of Imperfectly Known Local Subsoil Conditions on the Prediction of Ground-Borne Vibrations in Buildings  
*Manthos Papadopoulos, Stijn François, Geert Degrande, Geert Lombaert*

### COMPDYN RS 21: SOIL DYNAMICS
*Chair:* Angelos Tsinaris

**C 17293** Simplified Numerical Modeling Strategies of Deep Vibratory Compaction  
*Maximilian Schmitter, Christoph Adam*

**C 16959** Small-Strain Stiffness and Damping of Loess in China  
*Binghui Song, Angelos Tsinaris, Anastasios Anastasiadis, Kyriazis Ptitilakis, Wenwu Chen*
COMPDYN MS 31: ADVANCES IN TRANSIENT ANALYSIS OF STRUCTURES AND THE ACADEMIC/COMMERCIAL SOFT WARES

MS Organizer: Aram Soroushian
Chair: Aram Soroushian

C 17963 A NEW APPROACH FOR PRACTICAL TIME INTEGRATION ANALYSIS
Aram Soroushian

C 18516 ON THE PERFORMANCE OF A TRANSIENT ANALYSIS COMPUTATIONAL COST REDUCTION TECHNIQUE WHEN THE ANALYSIS IS INVOLVED IN FRICTION
Aram Soroushian

C 18172 ON REDUCTION OF COMPUTATIONAL COST IN ANALYSIS OF SOIL-STRUCTURAL-INTERACTION
Maryam Erfanian, Aram Soroushian

C 18493 ON SUFFICIENT AND NECESSARY CONDITIONS FOR NUMERICAL STABILITY IN NONLINEAR TRANSIENT ANALYSIS
Aram Soroushian

C 17661 EARTHQUAKES DATA SIMULATION BY USING COPULA METHODS AND SELF-ORGANIZING NEURAL NETWORKS (SONN) TO DEVELOP TECHNIQUES FOR FORECASTING
Moatafa Allameh Zadeh

C 18257 ON REDUCTION OF COMPUTATIONAL COST IN TRANSIENT ANALYSIS OF STRUCTURES AGAINST NEAR FIELD EARTHQUAKES
Yalda Zarabimanesh, Seyed Mohammad Hassan Khalkhali, Kaveh Soleymani, Farhad Akbarnejad, Seyed Rasoul Mirghaderi, Aram Soroushian
TECHNICAL SESSIONS

Friday, June 16
8:30-10:30

COMPDYN MS 18 - IV: MODELING THE NONLINEAR BEHAVIOR OF STRUCTURES

MS Organizers: Enrico Spacone, Humberto Varum
Chair: Enrico Spacone, Anastasios Sextos

C 17282 KEYNOTE: RINTC PROJECT - ASSESSING THE (IMPLICIT) SEISMIC RISK OF CODE-CONFORMING STRUCTURES IN ITALY
Iunio Iervolino, Andrea Spillatura, Paolo Bazzurro

C 17613 NONLINEAR SEISMIC ANALYSIS OF GRAVITY-DESIGNED RC STRUCTURES
Michelangelo Laterza, Michele D’Amato, Rosario Gigliotti

C 17642 THE EFFECT OF FORESHOCK AND MAINSHOCK SEQUENCES ON THE INELASTIC PERIOD OF STRUCTURAL SYSTEMS: THE CASE OF THE 2016 KUMAMOTO EARTHQUAKE
Duofa Ji, Evangelos Katsanos, Anastasios Sextos

C 18268 COMPLETE ANALYTICAL THERMO-MECHANICAL MODEL OF DOUBLE FRICTION PENDULUM DEVICES
Vincenzo Bianco, Giorgio Monti, Nicola Belfiore

C 18445 REALISTIC 3D NONLINEAR DYNAMIC ANALYSIS OF EXISTING AND RETROFITTED MULTI-STOREY RC BUILDINGS SUBJECT TO EARTHQUAKE LOADING
Giuseppe Occhipinti, Bassam Izzuddin, Ivo Calio’, Lorenzo Macorini

Friday, June 16
8:30-10:30

COMPDYN MS 27 - IV: ADVANCED NUMERICAL METHODS FOR HISTORICAL MASONRY MONUMENTS

MS Organizers: Nicola Cavalagli, Francesco Clementi, Gabriele Milani, Constantine Spyrokos, Vagelis Plevris
Chair: Francesco Clementi, Constantine Spyrokos

C 17918 SEISMIC VULNERABILITY OF DIFFERENT IN GEOMETRY HISTORIC MASONRY TOWERS
Vasilis Sarhosis, Francesco Fabbrocino, Antonio Formisano, Gabriele Milani

C 17787 NUMERICAL INVESTIGATION ON THE SEISMIC RESPONSE OF HISTORICAL TOWERS
Giovanni Castellazzi, Antonio Maria D’Altri, Stefano De Miranda, Antonio Michele Tralli

C 17774 MODAL PARAMETERS IDENTIFICATION ON ENVIRONMENTAL TESTS OF ANCIENT BELL TOWERS AND VALIDATION OF THEIR NUMERICAL MODELS
Francesco Clementi, Alessio Pierdicca, Gabriele Milani, Stefano Lenci

C 18126 LIMIT ANALYSIS APPROACH FOR THE SEISMIC VULNERABILITY REDUCTION OF MASONRY TOWERS THROUGH STRENGTHENING WITH TRADITIONAL AND INNOVATIVE MATERIALS
Gabriele Milani, Rafael Shehu, Marco Valente

C 18130 DYNAMIC TESTING AND MONITORING OF HISTORIC TOWERS FOR SEISMIC DAMAGE DETECTION
Alban Kita, Nicola Cavalagli, Gabriele Comanducci, Filippo Ubertini

C 17126 A NONLINEAR MACROELEMENT FORMULATION FOR THE SEISMIC ANALYSIS OF MASONRY BUILDINGS
Domenico Liberatore, Daniela Addessi, Marialuigia Sangirardi
### Day 2 – Friday, June 16

#### UNCECOMP MS 4 - I: Advanced Simulation-Based Approaches to Uncertainty Quantification and Reliability Analysis

**MS Organizers:** Edoardo Patelli, Francisco Alejandro Diaz De la O, Siu-Kui Au, Michael Shields  
**Chair:** Siu-Kui Au, Edoardo Patelli

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<td>A Probabilistic Approach to CFD Model Validation with Field Measurements in Wind Energy</td>
<td>Alexander Raul Meyer Forsting, Niels Troldborg, Juan Pablo Murcia Leon</td>
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<td>Gaussian Densities and Gaussian Mixtures in the Cross Entropy Method</td>
<td>Sebastian Geyer, Iason Papaioannou, Daniel Straub</td>
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<td>Multilevel Monte Carlo Approximation of Functions</td>
<td>Sebastian Krumscheid, Fabio Nobile</td>
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<td>Mehrdad Bahari Mehrabani, Hua-Peng Chen</td>
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<td>Alan Calder, Melissa Hoffman, Maximilian Katz, Donald Willcox, Scott Ferson, Douglas Swesty</td>
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<td>Flood Risk Assessment of Masonry Arch Bridges</td>
<td>Enrico Tubaldi, Lorenzo Macorini, Bassam Izzuddin</td>
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#### COMPDYN MS 2 - III: Experimental Measurements and Numerical Simulation on Problems in the Field of Earthquake - In-Situ Measurements of EQ and Dynamic Response

**MS Organizer:** George Manos  
**Chair:** George Manos  
**In memory of Professor Ray W. Clough**

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<td>In-Situ Measurements Related to the Performance of Stone Masonry Bridges in Greece</td>
<td>George Manos, Evagelos Kozikopoulos, Lambros Kotoulas, Nick Simos</td>
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<td>On the Assessment of the Plaka Bridge Collapse Using Non-Linear Analysis Preventable or Doomed?</td>
<td>Nick Simos, George Manos, Evagelos Kozikopoulos, Lambros Kotoulas</td>
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<td><strong>U 16713</strong> IDENTIFICATION AND QUANTIFICATION OF MULTIVARIATE POSSIBILISTIC MANUFACTURING UNCERTAINTY IN DYNAMIC NUMERICAL MODELS&lt;br&gt;<strong>Matthias Faes, Dirk Vandepitte, David Moens</strong></td>
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<td><strong>C 16800</strong> MIXED-DIMENSIONAL COUPLING VIA AN EXTENDED DIRICHLET-TO-NEUMANN METHOD&lt;br&gt;<strong>Yoav Ofir, Daniel Rabinovich, Dan Givoli</strong></td>
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### C 16914  PARAMETRIC STUDY OF FRICTIONAL DAMPING IN JOINTED BEAMS
Yifan Yang, Louis Jezequel, Olivier Dessombz, Philippe Bristiel

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**COMPDYN MS 33 - I: WORKSHOP ON FRAGILITY EVALUATION AND SEISMIC SAFETY ASSESSMENT OF “SPECIAL RISK” INDUSTRIAL PLANTS (INDUSE-2-SAFETY)**

*MS Organizers:* Oreste S. Bursi, Spyros A. Karamanos  
*Chair:* Oreste S. Bursi, Spyros A. Karamanos

#### C 18477  KEYNOTE: DESIGN ISSUES OF LIQUID STORAGE TANKS AND PIPELINES IN SEISMIC AREAS
*R. Ofner, Maria Katsoulis*

#### C 18327  SHAKING TABLE TESTING OF CYLINDRICAL STEEL LIQUID STORAGE TANKS
*Philippe Mongabure, S. Vasic*

#### C 18153  NUMERICAL AND EXPERIMENTAL INVESTIGATION OF BASE PLATE INTEGRITY IN UNANCHORED LIQUID STORAGE TANKS
*Maria Vathi, Patricia Pappa, Charis Papatheocharis, Philip C. Perdikaris, Spyros A. Karamanos*

#### C 18295  PROBABILISTIC RISK ASSESSMENT OF PROCESS PLANTS UNDER SEISMIC LOADING
*Silvia Alessandri, Daniele Corritore, Antonio Casimiro Caputo, Renato Giannini, Fabrizio Paolacci, Nam Hoang Phan*

#### C 18148  SEISMIC FRAGILITY OF HORIZONTAL PRESSURE VESSELS - EFFECTS OF STRUCTURAL INTERACTION BETWEEN INDUSTRIAL COMPONENTS
*Jonas Korndörfer, Benno Hoffmeister, Markus Feldmann*

#### C 19889  PREDICTION OF RATCHET LIMIT UNDER THERMOMECHANICAL LOADINGS
*Ioannis Kapogiannis, Konstantinos Spiliopoulos*

### Friday, June 16
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**COMPDYN MS 29 - I: REPAIR AND RETROFIT OF STRUCTURES**

*MS Organizers:* Konstantinos G. Megalooikonomou, Ciro Del Vecchio  
*Chair:* Konstantinos G. Megalooikonomou, Ciro Del Vecchio

#### C 16683  A MECHANISTIC APPROACH IN DEFINING INELASTIC ROTATION CAPACITY OF RC COLUMNS
*Konstantinos G. Megalooikonomou, Stavroula J. Pantazopoulou, Souzana P. Tastani*

#### C 16923  BEHAVIOR OF CFRP CONFINED RC COLUMNS UNDER AXIAL LOAD AND UNIAXIAL CYCLIC LATERAL LOADING
*Marta Del Zoppo, Marco Di Ludovico, Alberto Balsamo, Andrea Prota*

#### C 17596  ASSESSMENT OF THE EFFECTIVENESS OF CABBING SYSTEM CONFIGURATION IN RETROFITTING STEEL-CONCRETE COMPOSITE BUILDINGS
*Georgios S. Papavasileiou*

#### C 18010  SIMPLIFIED ASSESSMENT OF EXPECTED SEISMIC LOSSES FOR AS BUILT AND RETROFITTED RC BUILDINGS
*Marco Gaetani D’Aragona, Maria Polese, Marco Di Ludovico, Andrea Prota*
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#### COMPDYN MS 38 - I: Computational Strategies and Assessment of In-Plane and Out-Of-Plane Seismic Response of Infilled Frames

*MS Organizers:* Liborio Cavaleri, Fabio Di Trapani, Panagiotis G. Asteris  
*Chair:* Fabio Di Trapani, Liborio Cavaleri

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**Epsilon**

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**Suite 211**

### COMPDYN RS 12 - I: NUMERICAL SIMULATION METHODS FOR DYNAMIC PROBLEMS

*Chair:* Hans Irschik, Gerardo Carpentieri  

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**Suite 213**

### UNCECOMP MS 3 - II: MULTISCALE ANALYSIS AND DESIGN OF RANDOM HETEROGENEOUS MEDIA

*MS Organizers:* George Stefanou, Dimitrios Savvas, Vissarion Papadopoulos  
*Chair:* George Stefanou, Dimitrios Savvas  

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## UNCECOMP RS 6 - I: EFFICIENT STOCHASTIC SIMULATION METHODS

**Chair:** Ioannis Kalogeris

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## COMPDYN RS 11 - I: NONLINEAR DYNAMICS

**Chair:** Adrien Renaud

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<td>STRUCTURAL SEISMIC RESPONSE ANALYSIS USING HIGH PERFORMANCE COMPUTING</td>
<td>Muneo Hori, Hiroki Motoyama, Hiroshi Akiba</td>
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<tr>
<td>11:00-13:00</td>
<td>Salon des Roses B</td>
<td>U 17254</td>
<td></td>
<td>PARADIGMS OF PROBABILISTIC MODELLING, BAYESIAN IDENTIFICATION, AND NUMERICAL ALGORITHMS</td>
<td>Hermann G. Matthies</td>
</tr>
<tr>
<td>11:00-13:00</td>
<td>Salon des Roses B</td>
<td>U 17253</td>
<td></td>
<td>SPATIAL UNCERTAINTY MODELLING USING INTERVAL FIELDS FOR THE ASSESSMENT OF MANUFACTURING UNCERTAINTY</td>
<td>David Moens</td>
</tr>
<tr>
<td>11:00-13:00</td>
<td>Salon des Roses B</td>
<td>U 17247</td>
<td></td>
<td>DYNAMICS AND HOMOGENIZATION OF DISORDERED LATTICE METAMATERIALS</td>
<td>Tanmoy Mukhopadhyay, Sondipon Adhikari</td>
</tr>
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### Friday, June 16

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<tr>
<th>11:00-13:00</th>
<th>Athena</th>
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<tr>
<td><strong>Chair:</strong></td>
<td>Jie Li</td>
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**U 17239** ON OPTIMIZATION UNDER UNCERTAINTY: INTEGRATION OF STOCHASTIC SIMULATION AND SURROGATE MODELING PRINCIPLES  
*Alexandros Taflanidis*

**U 17237** UNCERTAINTY QUANTIFICATION AND MANAGEMENT IN OPERATIONAL MODAL ANALYSIS  
*Siu-Kui Au*

**U 17091** DRILL-STRING DYNAMICS AND UNCERTAINTIES  
*Thiago Ritto*

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13:00-14:30  
Lunch Break
## TECHNICAL SESSIONS

**Friday, June 16**  
**14:30-16:30**  
*Delphi*

### COMPDYN MS 18 - V: MODELING THE NONLINEAR BEHAVIOR OF STRUCTURES

*MS Organizers:* Enrico Spacone, Humberto Varum  
*Chair:* Enrico Spacone, Dimos Charmpis

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<tr>
<td>C 17050</td>
<td>KEYNOTE: RINTC PROJECT: NONLINEAR DYNAMIC ANALYSES OF ITALIAN CODE-CONFORMING REINFORCED CONCRETE BUILDINGS FOR COLLAPSE RISK ASSESSMENT</td>
<td>Guido Camata, Francesca Celano, Maria Teresa De Risi, Paolo Franchin, Gennaro Magliulo, Vincenzo Manfredi, Angelo Masi, Fabrizio Mollaioli, Fabrizio Noto, <strong>Paolo Ricci</strong>, Enrico Spacone, Marco Terrenzi, Gerardo Verderame</td>
<td>Paolo Franchin, <strong>Fabrizio Mollaioli</strong>, Fabrizio Noto</td>
<td>Enrico Spacone, Dimos Charmpis</td>
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| C 17123 | RINTC PROJECT: INFLUENCE OF STRUCTURE-RELATED UNCERTAINTIES ON THE RISK OF COLLAPSE OF ITALIAN CODE-CONFORMING REINFORCED CONCRETE BUILDINGS | Paolo Franchin, **Fabrizio Mollaioli**, Fabrizio Noto | Paolo Franchin, **Fabrizio Mollaioli**, Fabrizio Noto | Enrico Spacone, Dimos Charmpis |

| C 17074 | RINTC PROJECT: NONLINEAR DYNAMIC ANALYSES OF ITALIAN CODE-CONFORMING URM BUILDINGS FOR COLLAPSE RISK ASSESSMENT | Daniele Camilletti, Serena Cattori, Sergio Lagomarsino, Diego Bonalbo, Giovanni Guidi, Stefano Bracchi, Alessandro Galasco, Guido Magenes, Carlo Filippo Manzini, Andrea Penna, Maria Rota | Daniele Camilletti, Serena Cattori, Sergio Lagomarsino, Diego Bonalbo, Giovanni Guidi, Stefano Bracchi, Alessandro Galasco, Guido Magenes, Carlo Filippo Manzini, Andrea Penna, Maria Rota | Enrico Spacone, Dimos Charmpis |

| C 17594 | RINTC PROJECT: NONLINEAR ANALYSES OF ITALIAN CODE-CONFORMING PRECAST R/C INDUSTRIAL BUILDINGS FOR COLLAPSE RISK ASSESSMENT | Marianna Ercolino, Maddalena Cimmino, **Gennaro Magliulo**, Davide Bellotti, Roberto Nascimbene | Marianna Ercolino, Maddalena Cimmino, **Gennaro Magliulo**, Davide Bellotti, Roberto Nascimbene | Enrico Spacone, Dimos Charmpis |

| C 17301 | RINTC PROJECT: NONLINEAR DYNAMIC ANALYSES OF ITALIAN CODE-CONFORMING STEEL SINGLE-STOREY BUILDINGS FOR COLLAPSE RISK ASSESSMENT | **Fabrizio Scozzese**, Giusy Terracciano, Alessandro Zona, Gaetano Della Corte, Andrea Dall'Asta, Raffaele Landolfo | **Fabrizio Scozzese**, Giusy Terracciano, Alessandro Zona, Gaetano Della Corte, Andrea Dall'Asta, Raffaele Landolfo | Enrico Spacone, Dimos Charmpis |

| C 19365 | RINTC PROJECT: NONLINEAR ANALYSES OF ITALIAN CODE-CONFORMING BASE-ISOLATED BUILDINGS FOR COLLAPSE RISK ASSESSMENT | Dontello Cardone, Nadia Conte, Andrea Dall'Asta, Antonio Di Cesare, Amedeo Flora, Gianmarco Leccese, Antonello Mossucca, Fabio Micozzi, **Felice Carlo Ponzo**, Laura Ragni | Dontello Cardone, Nadia Conte, Andrea Dall'Asta, Antonio Di Cesare, Amedeo Flora, Gianmarco Leccese, Antonello Mossucca, Fabio Micozzi, **Felice Carlo Ponzo**, Laura Ragni | Enrico Spacone, Dimos Charmpis |

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**Friday, June 16**  
**14:30-16:30**  
*Salon des Roses A*

### COMPDYN MS 27 - V: ADVANCED NUMERICAL METHODS FOR HISTORICAL MASONRY MONUMENTS PRESERVATION IN SEISMIC ZONE

*MS Organizers:* Nicola Cavaglapi, Francesco Clementi, Gabriele Milani, Constantine Spyrakos, Vagelis Plevris  
*Chair:* Nicola Cavaglapi, Francesco Clementi

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<td>C 18368</td>
<td>EXPERIMENTAL VALIDATION OF IN-PLANE FRICTIONAL RESISTANCES IN DRY BLOCK MASONRY WALLS</td>
<td><strong>Claudia Casapulla</strong>, Luca Umberto Argiento, Carla Ceraldi</td>
<td><strong>Claudia Casapulla</strong>, Luca Umberto Argiento, Carla Ceraldi</td>
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| C 18374 | FRAGILITY FUNCTIONS FOR MINARETS | Eser Çakti, Ufuk Hancilar, Özden Saygili | Eser Çakti, Ufuk Hancilar, Özden Saygili | Nicola Cavaglapi, Francesco Clementi |

DAY 2 – FRIDAY, JUNE 16

C 18527  HEALTH MONITORING OF A MONUMENT AT ACROPOLIS USING AN EXPERT ACQUISITION SYSTEM AND WIRED OPTICAL SENSORS
Constantine C. Spyrokos, Cosmas P. Fessas, George A. Andrikopoulos

C 18433  FRP-REINFORCED MASONRY STRUCTURES: NUMERICAL MODELING BY MEANS OF A NEW DISCRETE ELEMENT APPROACH
Salvatore Caddemi, Ivo Caliò, Francesco Cannizzaro, Paulo Lourenco, Bartolomeo Pantò

C 18215  FIBRE-BASED SECTIONAL ANALYSIS OF URM WALLS WITH SINGLE-SIDE FRCM STRENGTHENING
Costantino Menna, Fulvio Parisi, Andrea Prota

C 18688  LITERATURE REVIEW OF MASONRY STRUCTURES UNDER EARTHQUAKE EXCITATION UTILIZING MACHINE LEARNING ALGORITHMS
Vagelis Plevris, Nikolaos Bakas, Gro Markeset, John Bellos

Friday, June 16
14:30-16:30  Salon des Roses B

COMPDYN MS 30 - I:  DYNAMICS AND SEISMIC RESPONSE OF ROCKING AND SELF-CENTERING STRUCTURES
MS Organizers: Elias Dimitrakopoulos, Michalis Fragiadakis, Michalis Vassiliou
Chair: Elias Dimitrakopoulos, Michalis Vassiliou

C 17630  KEYNOTE: SEISMIC ASSESSMENT FOR A PRETENSIONED, ROCKING BRIDGE DESIGNED FOR RAPID CONSTRUCTION
Islam Mantawy, Travis Thonstad, David Sanders, John Stanton, Marc Eberhard

C 18500  SIMPLIFIED FINITE ELEMENT MODELS FOR THE DYNAMIC RESPONSE ASSESSMENT OF RIGID AND FLEXIBLE BLOCKS
Spyros Diamantopoulos, Michalis Fragiadakis

C 18188  DESIGN STRATEGY FOR THE ROCKING STABILITY OF HORIZONTALLY RESTRAINED MASONRY WALLS
Linda Giresini

C 17190  ROCKING RESONANCE CONDITIONS OF LARGE AND SLENDER RIGID BLOCKS UNDER THE INTENSE PHASE OF AN EARTHQUAKE
Claudia Casapulla, Alessandra Maione

C 17225  SEISMIC LOSS ASSESSMENT CONSIDERING STRUCTURAL DAMAGE AND OVERTURNING OF FREE-STANDING NONSTRUCTURAL COMPONENTS
Eugenio Chioccarelli, George Baltzopoulos
### COMPDYN MS 2 - IV: EXPERIMENTAL MEASUREMENTS AND NUMERICAL SIMULATION ON PROBLEMS IN THE FIELD OF EARTHQUAKE - BASE ISOLATION, DAMPING AND ENERGY DISSIPATIVE DEVICES

**MS Organizer:** George Manos  
**Chair:** Konstantinos Katakalos

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<tr>
<td>C 16893</td>
<td>KEYNOTE: NUMERICAL SIMULATION OF THE SUSPENDED ROOF OF THE NIARCHOS CULTURAL CENTER AT ATHENS – GREECE UTILISING COMPONENT TEST RESULTS</td>
<td>George Manos, V. Kourtides, K. Katakalos, L. Kotoulas, G. Koidis, K. Kyprioti</td>
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<td>C 18432</td>
<td>EFFECTIVENESS OF THE RBRL ISOLATION SYSTEM: EVIDENCES FROM SEISMIC TESTS AND NUMERICAL SIMULATION</td>
<td>Marco Donà, Alan H. Muhr, Giovanni Tecchio, Simone Salvia, Claudio Modena</td>
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<tr>
<td>C 17364</td>
<td>NUMERICAL SIMULATION OF THE COUPLED TENSION-SHEAR RESPONSE OF AN INNOVATIVE DISSIPATIVE CONNECTION FOR CLT BUILDINGS</td>
<td>Luca Marchi, Davide Trutalli, Roberto Scotta, Luca Pozza</td>
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<td>C 17348</td>
<td>HIGH DAMPING RUBBER BEARING ISOLATORS: QUASI-LINEAR MECHANICAL MODEL FORMULATIONS</td>
<td>Athanasios A. Markou, George D. Manolis</td>
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<td>C 18065</td>
<td>EVALUATION OF AN INNOVATIVE PASSIVE MITIGATION DEVICE THROUGH EXPERIMENTAL AND NUMERICAL INVESTIGATION</td>
<td>Magdalini Titirla, Konstantinos Katakalos</td>
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### UNCECOMP MS 7 - II: NON-PROBABILISTIC APPROACHES FOR UNCERTAINTY REPRESENTATION AND ANALYSIS IN ENGINEERING

**MS Organizers:** David Moens, Dirk Vandepitte, Michael Hanss, Alba Sofi  
**Chair:** David Moens, Alba Sofi

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<tr>
<td>U 17054</td>
<td>KEYNOTE: ESTIMATION OF FAILURE PROBABILITY INTERVALS UNDER PARAMETRIC AND NON-PARAMETRIC P-BOXES AND COPULAS</td>
<td>Jorge Hurtado, Diego Alvarez, Juliana Ramirez</td>
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<tr>
<td>U 16946</td>
<td>RESPONSE OF BEAMS WITH CRACK OF UNCERTAIN-BUT BOUNDED DEPTH SUBJECTED TO DETERMINISTIC OR STOCHASTIC LOADS</td>
<td>Giuseppe Muscolino, Roberta Santoro</td>
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<td>U 16980</td>
<td>VERICOMP 2.0, A PLATFORM TO COMPARE AND RECOMMEND VERIFIED IVP SOLVERS</td>
<td>Ekaterina Auer, Stefan Kiel, Andreas Rauh</td>
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<td>U 17151</td>
<td>REAL-TIME FUZZY ANALYSIS OF MACHINE DRIVEN TUNNELING</td>
<td>Bo Trung Cao, Steffen Freitag, Günther Meschke</td>
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<tr>
<td>U 17214</td>
<td>UNCERTAINTY QUANTIFICATION OF A MAGNETOSTRICTIVE ENERGY HARVESTER OUTPUT</td>
<td>Jan Chleboun, Ielizaveta Kholmetska, Pavel Krejči</td>
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# COMPDYN MS 10 - II: ADVANCES IN NUMERICAL METHODS FOR LINEAR AND NON-LINEAR DYNAMICS AND WAVE PROPAGATION

**Chair:** Alexander Idesman, Petros Komodromos

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<tr>
<th>Session Title</th>
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</table>
| **C 16785**  | KEYNOTE: OPTIMAL REDUCTION OF NUMERICAL DISPERSION FOR WAVE PROPAGATION PROBLEMS. APPLICATION TO ISOGEOOMETRIC ELEMENTS.  
**Alexander Idesman** |
| **C 17191**  | FREQUENCY-DOMAIN ITERATIVE SOLVER FOR 3D ELASTIC WAVE EQUATION AND ITS APPLICATION FOR FULL-WAVEFORM INVERSION  
**Vladimir Cheverda, Victor Kostin, Dmitry Neklyudov, Galina Reshetova** |
| **C 17252**  | EFFECT OF GROUND MOTION DIRECTIONALITY ON SEISMIC RESPONSE OF BASE-ISOLATED BUILDINGS CONSIDERING POUNDING TO ADJACENT STRUCTURES  
**Eftychia Mavronicola, Petros Komodromos** |
| **C 17395**  | ENERGY-MOMENTUM METHODS FOR NONLINEAR ELASTODYNAMICS RELYING ON POLYCONVEX STORED ENERGY FUNCTIONS  
**Peter Betsch, Alexander Janz, Christian Hesch** |
| **C 17407**  | AN EFFICIENT HYBRID DISCONTINUOUS GALERKIN METHOD FOR THE WAVE PROPAGATION IN VISCOELASTIC MEDIA: APPLICATION TO LITHOLOGICAL SITE EFFECTS  
**Nathalie Glinsky** |
| **C 17409**  | A HIGH-ORDER DISCONTINUOUS GALERKIN METHOD FOR 1D WAVE PROPAGATION IN NON-LINEAR HETEROGENEOUS MEDIA  
**Simon Chabot, Nathalie Glinsky, Diego Mercerat, Fabian Bonilla** |

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# COMPDYN MS 33 - II: WORKSHOP ON FRAGILITY EVALUATION AND SEISMIC SAFETY ASSESSMENT OF “SPECIAL RISK” INDUSTRIAL PLANTS (INDUSE-2-SAFETY)

**Chair:** Oreste S. Bursi, Spyros A. Karamanos

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<th>Session Title</th>
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</table>
| **C 18213**  | KEYNOTE: SEISMIC DESIGN OF RLG TANKS IN THE CONTEXT OF EUROCODE  
**Richard Albert** |
| **C 18291**  | GUIDELINES FOR RISK-BASED SEISMIC ANALYSIS OF “SPECIAL RISK” PETROCHEMICAL PLANTS  
**Gunter Fischnbach, Md Shahin Reza** |
| **C 18282**  | ANALYSIS AND RISK ASSESSMENT OF LNG PLANTS AND OF INNOVATIVE METAMATERIAL-BASED SHIELDS UNDER SEISMIC LOADING  
**Oreste S. Bursi, Rocco Di Filippo, Vincenzo La Salandra, Massimiliano Pedot, Moritz Wenzel** |
| **C 18534**  | CFD SUPPORT TO RISK ASSESSMENT RELATED TO SEISMIC EVENTS IN PETROCHEMICAL PLANTS  
**Michele De Santis, Elisabetta Mecozzi** |

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## DAY 2 – FRIDAY, JUNE 16

### COMPDYN MS 29 - II: REPAIR AND RETROFIT OF STRUCTURES

**MS Organizers:** Konstantinos G. Megalooikonomou, Ciro Del Vecchio  
**Chair:** Konstantinos G. Megalooikonomou, Ciro Del Vecchio

**C 20559** KEYNOTE: USE OF AN INTEGRATED ANALYTICAL/NUMERICAL/EXPERIMENTAL APPROACH FOR THE ASSESSMENT OF PRE- AND POST-EARTHQUAKE CAPACITY OF REINFORCED CONCRETE BUILDINGS  
**Stefano Pampanin**

**C 17852** VALIDATION OF REFINED NUMERICAL MODELING FOR EXISTING RC BUILDINGS: COMPARISON BETWEEN PREDICTED AND OBSERVED EARTHQUAKE DAMAGE  
**Ciro Del Vecchio, Marco Di Ludovico, Stefano Pampanin, Andrea Prota**

**C 18106** SEISMIC AMELIORATION OF EXISTING REINFORCED CONCRETE BUILDINGS: STRATEGY TO OPTIMIZE THE AMOUNT OF REINFORCEMENT FOR JOINTS  
**Vincenzo Bianco, Giorgio Monti, Alessandro Vari, Gianluigi Palmieri**

### COMPDYN RS 17 - II: REPAIR AND RETROFIT OF STRUCTURES

**Chair:** Emmanouil Vougioukas

**C 18195** REINFORCED CONCRETE FRAMES STRENGTHENED BY CABLE ELEMENTS UNDER CYCLIC LOADING: A COMPUTATIONAL APPROACH SIMULATING EXPERIMENTAL RESULTS  
**Angelos Liolios, Constantin Chalioris**

**C 18197** REINFORCED CONCRETE FRAMES STRENGTHENED BY CABLE ELEMENTS UNDER CYCLIC LOADING: EXPERIMENTAL INVESTIGATION  
**Angelos Liolios, Panagiotis Efthymiopoulos, Theofilos Mergoupis, Vaios Rizavas, Constantin Chalioris**

**C 18233** RESPONSE OF REPAIRED FUSE BEAMS TO DYNAMIC TESTING  
**Emmanouil Vougioukas, Stella Avgerinou, Konstantinos Theocaris**

**C 18421** DESIGN OF GROUTS FOR STRENGTHENING THREE OR TWO LEAF MASONRY WITH MUD MORTARS  
**Vasiliki Nikolopoulou, Chryssi-Elpida Adami, Elizabeth Vintzileou, Vasiliki Palieraki**

### COMPDYN MS 38 - II: COMPUTATIONAL STRATEGIES AND ASSESSMENT OF IN-PLANE AND OUT-OF-PLANE SEISMIC RESPONSE OF INFILLED FRAMES

**MS Organizers:** Liborio Cavaleri, Fabio Di Trapani, Panagiotis G. Asteris  
**Chair:** Liborio Cavaleri, Fabio Di Trapani

**C 18605** SIMPLIFIED MODELING OF MASONRY INFILL WALLS WITH HORIZONTAL SLIDING JOINTS  
**Valentino Bolis, Marco Preti, Andreas Stavridis**

**C 18606** EMPIRICAL-BASED INFILL MODEL ACCOUNTING FOR IN-PLANE/OUT-OF-PLANE INTERACTION APPLIED FOR THE SEISMIC ASSESSMENT OF EC8-DESIGNED RC FRAMES  
**Paolo Ricci, Mariano Di Domenico, Gerardo M. Verderame**

**C 18616** INFLUENCE OF IN-PLANE AND OUT-OF-PLANE INTERACTION OF INFILL WALLS ON GLOBAL COLLAPSE RESISTANCE CAPACITY OF INFILLED RC FRAME  
**Jianping Han, Zhenlong Zhang, Linjie Huang, Xiaoyun Sun**

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C 18698 IN-PLANE SEISMIC PERFORMANCE OF RC STRUCTURES WITH AN INNOVATIVE MASONRY INFILL WITH SLIDING JOINTS THROUGH NON-LINEAR ANALYSES
Andrea Rossi, Paolo Morandi, Riccardo Milanesi, Guido Magenes

C 17482 FURTHER DEVELOPMENTS OF A SIMPLIFIED MODELLING OF INFILLED FRAMES FOR REINFORCED CONCRETE BUILDINGS
Giuseppina Uva, Andrea Fiore, Francesco Porco

C 17476 COMPARATIVE ASSESSMENT OF STRUT MODELS FOR THE MODELLING OF IN-PLANE SEISMIC RESPONSE OF INFILL WALLS
Laura Liberatore, Fabrizio Noto, Fabrizio Mollaioli, Paolo Franchin

Friday, June 16
14:30-16:30 Gamma

COMPDYN MS 11 - II: RECENT ADVANCES AND CHALLENGES IN GEOTECHNICAL EARTHQUAKE ENGINEERING
MS Organizers: Castorina Silva Vieira, Yiannis Tsompanakis
Chair: Castorina Silva Vieira, Yiannis Tsompanakis
C 19872 SOLUTION OF SOIL-STRUCTURE INTERACTION PROBLEMS IN GPU ENVIRONMENTS
George Stavroulakis, Manolis Papadrakakis

C 18166 UNDERSTANDING THE EFFECT OF GEOTECHNICAL PARAMETERS IN SOIL RESPONSE ANALYSIS TO EARTHQUAKE LOADING
Muhsin Rahhal, Mireille Antabli

C 18171 NEW INSIGHTS IN THE LIQUEFACTION POTENTIAL EVALUATION METHODS FOR SOILS
Muhsin Rahhal, Dona Zakhem

C 18447 NUMERICAL MODELLING OF THE DYNAMIC RESPONSE OF LIQUEFIABLE DEPOSITS IN THE PRESENCE OF SMALL SCALE BUILDINGS
Jovana Borozan, Pedro Alves Costa, Xavier Romão, Julieth Quintero, António Viana Da Fonseca

C 17924 GEOTECHNICAL SEISMIC ISOLATION USING EPS GEOFOAM AROUND PILES
Xenia Karatzia, George Mylonakis

C 16983 ANALYTICAL ASSESSMENT OF SEISMIC RESPONSE OF A NEW GENERATION OF BRIDGE PIERS WITH PIPE PIN CONNECTIONS
Mehrdad Mehraein, M. Saiid Saiidi

Friday, June 16
14:30-16:30 Epsilon

COMPDYN RS 19 - I: SEISMIC RISK AND RELIABILITY ANALYSIS
Chair: Gian Paolo Cimellaro
C 18664 A NEW DECISION MAKING METHOD TO SELECT PRIORITY INTERVENTIONS AFTER EXTREME EVENTS
Glen Dervishaj, Gian Paolo Cimellaro, Anil Agrawal

C 16859 EARTHQUAKE DAMAGE ESTIMATION OF FOUR PALACE BUILDINGS AND MEASUREMENTS OF VIBRATION DECREASING FOR CULTURAL RELICS CABINET IN BEIJING FORBIDDEN CITY
Junwu Dai, Lulu Zhang, Yongqiang Yang
### C 16994 Vulnerability Data Collection and Definition of Seismic Risk for Cities in Palestine

*Antonella Di Meo, Barbara Borzi, Marta Faravelli, Diego Polli, Marco Pagano, Alessio Cantoni*

### C 17250 Seismic Frailty of Three-Span Reinforced Concrete Slab Bridges Derived from Pushover and Response Spectra Simulations

*Marian Ralbovsky, Maciej Kwapisz, Mariantonietta Morga*

### C 17350 Seismic Vulnerability Models of Piers Under Near-Fault Ground Motions

*Li-Bo Chen, Hua-He Wang, Yin Gu*

### C 17408 A Class-Oriented Large Scale Comparison with Post-Earthquake Damage for Abruzzi Region

*Carlo Del Gaudio, Paolo Ricci, Gerardo Mario Verderame*

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**Friday, June 16**

**14:30-16:30**

**Suite 211**

**COMPdyn 2017 / UNCECOMP 2017 – Programme**

### C 18101 Coupled Axial-Shear Model for Analysis of CLT Panels: Effect of Different Numerical Strategies

*Luca Franco, Luca Pozza, Anna Saetta, Marco Savoia, Diego Alejandro Talledo*

### C 17160 Modal Analysis Procedure Using Complex Left and Right Eigenvectors of Non-Proportionally Damped Structures

*Evgueni Stanoev*

### C 17402 Simulation-Free Hyper-Reduction for Geometrically Nonlinear Structures Based on Stochastic Krylov Training Sets

*Christian H. Meyer, Johannes B. Rutzmoser, Daniel J. Rixen*

### C 17457 Influence of Temperature Changes on Dynamic Characteristics of Structures with VE Dampers

*Maciej Przychodzki, Roman Lewandowski*

### C 17462 Isogeometric Methods in Dynamic Analysis of Curved Beams Including Warping and Distortional Effects

*Ioannis Tsiptsis, Evangelos Sapountzakis*

### C 18156 Analyses of the Seismic Actions Recorded During the 2016 Central Italy Seismic Sequence: Observed vs Code Provision Values

*Felice Carlo Ponzo, Rocco Ditommaso, Antonella Nigro, Chiara Iacovino*
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<td>Suite 213</td>
<td>UNCECOMP RS 12 - I: UNCERTAINTY QUANTIFICATION</td>
<td>DIFFERENT VIEWS ON ADDITIONAL RANDOM PARAMETERS IN EXPERIMENT DESIGN FOR THERMOPHYSICAL PARAMETERS ESTIMATION</td>
<td>Daniela Jaruskova, A. Kucerova</td>
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<td>MULTIDIMENSIONAL STOCHASTIC FINITE ELEMENT METHOD AT LARGE DEFORMATIONS UNDER CONSIDERING OF DEPENDENCY</td>
<td>Eduard Penner, Ismail Caylak, Rolf Mahnken</td>
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<td>BAYESIAN CALIBRATION FOR PARAMETERS OF JWL EQUATION OF STATE IN CYLINDER TEST</td>
<td>Hua Chen, Haibing Zhou, Guozhao Liu, Zhanfeng Sun, Shudao Zhang</td>
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<td>A POSSIBILISTIC APPROACH FOR LINEAR ISOTROPIC ELASTICITY USING THE FUZZY FINITE ELEMENT METHOD</td>
<td>Alex Dridger, Ismail Caylak, Rolf Mahnken</td>
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<td>LEVEL SET METHODS FOR STOCHASTIC DISCONTINUITY DETECTION IN NONLINEAR WAVE PROPAGATION PROBLEMS</td>
<td>Per Pettersson, Alireza Doostan, Jan Nordström</td>
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<td>A COUPLED NUMERICAL AND LASER OPTICAL METHOD FOR ON-SITE CALIBRATION OF FLOW METERS</td>
<td>Andreas Weissenbrunner, André Fiebach, M. Juling, P.U. Thamsen</td>
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<td>14:30 - 16:30</td>
<td>Suite 311</td>
<td>UNCECOMP RS 6 - II: EFFICIENT STOCHASTIC SIMULATION METHODS</td>
<td>SOLUTION OF ISOGEOOMETRIC STOCHASTIC PROBLEMS USING DOMAIN DECOMPOSITION</td>
<td>George Stavroulakis, Marc Mignolet</td>
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U 16762  APPROACH TO PROVE THE EFFICIENCY OF THE MONTE CARLO METHOD COMBINED WITH THE ELEMENTARY EFFECT METHOD TO QUANTIFY UNCERTAINTY OF A BEAM STRUCTURE WITH PIEZO-ELASTIC SUPPORTS
*Sushan Li, Benedict Goetz, Maximilian Schaeffner, Roland Platz*

**Friday, June 16**
**14:30-16:30**

**Suite 313**

**COMPDYN RS 11 - II: NONLINEAR DYNAMICS**

**Chair:** Gianluca Gatti

**C 17456**  RESONANCE PHENOMENA IN SYSTEMS WITH HYSTERETIC NONLINEARITIES

*Mikhail E. Semenov, Olga O. Reshetova, Olesya I. Kanishcheva, Peter A. Meleshenko, Evgeniya G. Kabulova*

**C 17469**  FLUTTER ANALYSIS OF COMPOSITE LAMINATES WITH CURVILINEAR FIBRES

*Hamed Akhavan, Pedro Ribeiro*

**C 17485**  ON THE DYNAMIC BEHAVIOR OF A NONLINEAR OSCILLATOR WITH SOFTENING CHARACTERISTICS ATTACHED TO AN ELECTRO-DYNAMIC ACTUATOR

*Alfonso Cutuli, Rosario Aiello, Gianluca Gatti*

**C 17500**  MODELLING CONCRETE MATERIAL BEHAVIOUR UNDER HIGH LOADING RATES

*Alaa Swesi, Ali Abbas, Demetris Cotsovos*

**C 17504**  DAMAGE SURVEY OF 2016 KUMAMOTO EARTHQUAKE AND NUMERICAL STUDY ON ELASTO-PLASTIC DYNAMIC ANALYSIS OF PLATE GIRDER BRIDGES

*Akira Kasai, Yuta Ushitsuka, Eiichi Eyama, Shogo Matsunaga*

**C 17525**  NUMERICAL ANALYSIS OF FLUTTER INSTABILITY IN SIMPLIFIED BLADE CASCADE

*Jan Vimmer, Ondrej Bublik, Ales Pecka, Ludek Pesek*

**16:30-17:00**

**Coffee Break**
### TECHNICAL SESSIONS

**Friday, June 16**  
**17:00-19:00**

**Delphi**

**UNCECOMP MS 12: COMPUTATIONAL STOCHASTIC MULTISCALE MODELLING**  
*MS Organizers:* Paul Steinmann, Dmytro Pivovarov  
*Chair:* Paul Steinmann, Dmytro Pivovarov

**U 16829 KEYNOTE: REDUCED BASIS FOR A STOCHASTIC FEM BASED HOMOGENIZATION FRAMEWORK**  
*Dmytro Pivovarov, Paul Steinmann*

**U 16828 FUZZY-STOCHASTIC FEM BASED HOMOGENIZATION FRAMEWORK FOR HETEROGENEOUS MATERIALS WITH POLYMORPHIC UNCERTAINTIES IN THE MICROSTRUCTURE**  
*Dmytro Pivovarov, Thomas Oberleiter, Kai Willner, Paul Steinmann*

**U 16703 STOCHASTIC MODELING AND PROPAGATION OF UNCERTAINTIES IN NONLINEAR MULTISCALE APPROACHES: APPLICATION TO HYPERELASTIC COMPOSITES**  
*Brian Stober, Johann Guilleminot*

**U 16915 DFT INFORMED SWITCHING DYNAMICS IN FERROMAGNETICS WITH STOCHASTIC EFFECTS**  
*Min Yi, Bai-Xiang Xu*

**U 16923 CONSTRUCTION OF STATISTICALLY SIMILAR RVES FOR THE QUANTIFICATION OF UNCERTAINTY ASSOCIATED WITH THE MATERIAL’S MICROSTRUCTURE MORPHOLOGY**  
*Daniel Balzani, Niklas Miska, Stefan Prüger*

**U 16999 COMPUTATIONAL STOCHASTIC MULTISCALE FRAMEWORK FOR UNCERTAINTY QUANTIFICATION OF ADHESION CONTACT BEHAVIOR OF MEMS**  
*Truong Vinh Hoang, Ling Wu, Jean-Claude Golinval, Maarten Arnst, Ludovic Noels*

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**Friday, June 16**  
**17:00-19:00**

**Salon des Roses A**

**UNCECOMP MS 4 - II: ADVANCED SIMULATION-BASED APPROACHES TO UNCERTAINTY QUANTIFICATION AND RELIABILITY ANALYSIS**  
*MS Organizers:* Edoardo Patelli, Francisco Alejandro Diaz De la O, Siu-Kui Au, Michael Shields  
*Chair:* Francisco Alejandro Diaz De la O, Dimitrios G. Giovanis

**U 16948 SAMPLING SCHEMES FOR HISTORY MATCHING USING SUBSET SIMULATION**  
*Zitong Gong, Francisco Alejandro Diaz De La O, Michael Beer*

**U 16986 A NEW FLEXIBLE MIXTURE MODEL FOR CROSS-ENTROPY BASED IMPORTANCE SAMPLING**  
*Iason Papaioannou, Sebastian Geyer, Daniel Straub*

**U 17018 MARKOV CHAIN MONTE CARLO METHODS FOR UNCERTAINTY PROPAGATION AND RELIABILITY ANALYSIS**  
*Carsten Proppe*

**U 17035 MODELING HIGH-DIMENSIONAL INPUTS WITH COPULAS FOR UNCERTAINTY QUANTIFICATION PROBLEMS**  
*Emiliano Torre, Stefano Marelli, Paul Embrechts, Bruno Sudret*

**U 17078 ADAPTIVE VARIANCE-BASED MULTI-ELEMENT SIMPLEX STOCHASTIC COLLOCATION**  
*Dimitrios G. Giovanis, Michael D. Shields*
DAY 2 – FRIDAY, JUNE 16

U 17111  UNCERTAINTY ANALYSIS OF HETEROGENEITIES OF ROCK PROPERTIES IN HYDRAULIC FRACTURING
          Hasini Garikapati, Clemens Verhoosel, Harald Brummelen, Pedro Dièz

U 17287  ZERO-VARIANCE SIMULATED ANNEALING FOR BAYESIAN SYSTEM IDENTIFICATION
          Peter L. Green

Friday, June 16  17:00-19:00  Salon des Roses B

COMPDYN MS 30 - II: DYNAMICS AND SEISMIC RESPONSE OF ROCKING AND SELF-CENTERING STRUCTURES

MS Organizers: Elias Dimitrakopoulos, Michalis Fragiadakis, Michalis Vassiliou
Chair: Elias Dimitrakopoulos, Michalis Vassiliou

C 17952  NUMERICAL MODELING OF UNBONDED POST-TENSIONED PRECAST CONCRETE ROCKING WALLS
          USED AS WINDOW PIERS
          Rejina Joshi, Anil C. Wijeyewickrema, Taku Obara, Hidekazu Watanabe, Susumu Kono

C 18529  DYNAMIC RESPONSE OF A RIGID SLAB SUPPORTED BY FOUR RIGID CYLINDRICAL ROCKING AND
          WOBBLING COLUMNS
          Sharveen Rajah, Jonas Bachmann, Michalis Vassiliou, Bozidar Stojadinovic

C 17410  NUMERICAL STUDY ON THE DYNAMIC RESPONSE OF CLASSICAL COLUMN STANDING FREE ON AN
          ISOLATED BASE
          Ioannis Kavvadias, Henrik Bibo, Lazaros Vasiliadis

C 17501  NON-SMOOTH CONTACT DYNAMICS OF PLANAR MASONRY STRUCTURES USING MATHEMATICAL
          PROGRAMMING
          Francesco Portioli, Lucrezia Cascini, Raffaele Landolfo

C 17632  Nonsmooth modelling of impacts in rocking structures with Poisson’s Law
          Anastasios I. Giouvanidis, Elias G. Dimitrakopoulos

C 17368  ROCKING SPECTRUM INTENSITY MEASURE FOR SEISMIC ASSESSMENT OF ROCKING BLOCKS
          Ioannis Kavvadias, Kosmas Bantilas, Georgios Papachatzakis, Lazaros Vasiliadis, Anaxagoras Elenas

C 17865  SEISMIC FRAGILITY OF FREESTANDING BUILDINGS CONTENTS MODELLED AS RIGID BLOCKS
          Luigi Di Sarno, Crescenzo Petrone, Gennaro Magliulo, Edoardo Cosenza

Friday, June 16  17:00-19:00  Athena

COMPDYN MS 2 - V: EXPERIMENTAL MEASUREMENTS AND NUMERICAL SIMULATION ON PROBLEMS IN THE
FIELD OF EARTHQUAKE - SEISMIC PERFORMANCE OF STEEL STRUCTURES

MS Organizer: George Manos
Chair: Vassilios Soulis

C 18157  EXPERIMENTAL AND NUMERICAL INVESTIGATION OF STEEL SEISMIC LINKS
          Giannoula Chatzopoulou, Theocharis Papatheocharis, Spyros Karamanos, Philip Perdikaris

C 16894  EXPERIMENTAL TESTS AND NUMERICAL SIMULATION OF THE PLASTIC CYCLIC BEHAVIOUR OF STEEL
          COUPONS
          George Manos, Alexandra Nalmpantidou, V. Kourtides

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#### COMPDYN MS 10 - III: ADVANCES IN NUMERICAL METHODS FOR LINEAR AND NON-LINEAR DYNAMICS AND WAVE PROPAGATION

**MS Organizer:** Alexander Idesman  
**Chair:** Alexander Idesman

- **C 17398** LONGITUDINAL IMPACT INTO VISCOELASTIC MEDIA  
  George Gazonas, Raymond Wildman, David Hopkins, Mike Scheidler

- **C 17223** HIGH PERFORMANCE CPU-GPU FREQUENCY RESPONSE ANALYSIS  
  Mikhail Belyi, Andrey Larionov

#### COMPDYN RS 28 - I: WAVE PROPAGATION

**Chair:** Fernando Fraternali, Alireza Nateghi

- **C 17728** EXPERIMENTAL AND NUMERICAL STUDY OF WAVE DYNAMICS IN TENSEGRITY COLUMNS  
  Ada Amendola, Francesco Fabbrocino, Antonio Favata, Andrea Micheletti, Fernando Fraternali, Chiara Daroio

- **C 17379** VIBRATION ATTENUATION IN PIPES: DESIGN AND EXPERIMENTAL VALIDATION OF A RESONANT METAMATERIAL SOLUTION  
  Alireza Nateghi, Luca Sangiuliano, Claus Claeyts, Elke Deckers, Bert Pluymers, Wim Desmet

- **C 17000** QUANTIFICATION OF GUIDED WAVE INTERACTION EFFECTS WITH LOCALISED STRUCTURAL NONLINEARITIES IN COMPLEX, COMPOSITE STRUCTURES  
  Victor Thierry, Dimitrios Chronopoulos, I. Ashcroft

- **C 17975** ACOUSTIC REVERSE-TIME MIGRATION BASED ON MESH-FREE FINITE-DIFFERENCE  
  Xiaohui Cai, Guoxing Chen
Friday, June 16
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COMPDYN MS 19 - I: LOSS, RISK, UNCERTAINTY AND NONLINEAR MODELING FOR PERFORMANCE-BASED EARTHQUAKE ENGINEERING

MS Organizers: Dimitrios G. Lignos, Dimitrios Vamvatsikos
Chair: Dimitrios Vamvatsikos

C 20156 KEYNOTE: A PROPOSAL FOR DEVELOPING RISK-CONSISTENT BEHAVIOR FACTORS FOR CODE-COMPATIBLE SEISMIC DESIGN
Dimitrios Vamvatsikos, Konstantinos Bakalis

C 16732 FINDING CORRELATIONS BETWEEN ENGINEERING DEMAND PARAMETERS AND INTENSITY MEASURES THROUGH EVOLUTIONARY POLYNOMIAL REGRESSION
Alessandra Fiore, Fabrizio Mollaioli, Giuseppe Quaranta, Giuseppe Carlo Marano

C 16927 A SIMPLIFIED METHOD FOR NEAR-SOURCE PROBABILISTIC SEISMIC DEMAND ANALYSIS
Georgios Baltzopoulos, Dimitrios Vamvatsikos, Iunio Iervolino

C 16960 SIMPLIFIED PREDICTION OF PEAK FLOOR ACCELERATIONS IN INELASTIC WALL STRUCTURES
Lukas Moschen, Christoph Adam, Dimitrios Vamvatsikos

C 17007 PROBABILISTIC EVALUATION OF SEISMIC PERFORMANCE FOR A STEEL MOMENT FRAME USING DAMAGE INDICES
Behrouz Asgarian, Behnam Ordoubadi

Friday, June 16
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Nefeli A

UNCECOMP MS 9 - I: UNCERTAINTY COMPUTATIONS WITH REDUCED ORDER MODELS AND LOW-RANK REPRESENTATIONS

MS Organizers: Hermann G. Matthies, Martin Eigel, Lars Grasedyck, Anthony Nouy, Reinhold Schneider
Chair: Hermann G. Matthies, Anthony Nouy

U 16752 STOCHASTIC CALIBRATION OF COMPLEX CONSTITUTIVE MODELS IN CERAMIC POWDER COMPACTION
Vladimir Buljak, Shwetank Pandey

U 16836 SYMPLECTIC DYNAMICAL LOW RANK APPROXIMATION OF WAVE EQUATIONS WITH RANDOM PARAMETERS
Eleonora Musharbash, Fabio Nobile

U 16957 HIERARCHICAL LOW RANK TENSOR MODEL REDUCTION
Lars Grasedyck

U 16958 NUMERICAL SOLUTION OF BOUNDARY VALUE PROBLEMS ON DOMAINS WITH A THIN LAYER OF RANDOM THICKNESS
Marc Dambrine, Isabelle Greff, Helmut Harbrecht, Benedicte Puig

U 16972 RANK ADAPTATION IN THE TT-FORMAT FOR ILL-POSED INVERSE PROBLEMS
Lars Grasedyck, Sebastian Kraemer

U 16991 PARALLEL TENSOR ARITHMETIC FOR ITERATIVE SOLVERS
Christian Löbbert, Lars Grasedyck
### COMPDYN MS 13: EARTHQUAKE SOIL STRUCTURE INTERACTION MODELING AND SIMULATION

**MS Organizer:** Boris Jeremic  
**Chair:** Boris Jeremic

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*Andrea Canini, Davide Forcellini* |
| **C 17011** TIME-DOMAIN SOIL-STRUCTURE INTERACTION ANALYSIS  
*Shaolin Chen, Junquan Wang* |
| **C 17713** DYNAMIC ANALYSIS FOR MODULAR STRUCTURES. CONSIDERING SOIL - PILE - STRUCTURE INTERACTION  
*Yingcai Han, N. Gorai, S. Chatterjee, M. Harloff-Bernyk, T. Guo, C. D’Souza* |
| **C 18181** GEOMETRICALLY NONLINEAR FREE VIBRATIONS OF FUNCTIONALLY GRADED BEAM WITH DISCONTINUITIES RESTING ON NONLINEAR ELASTIC FOUNDATIONS  
*Mohcine Chajdi, El Bekkaye Merrimi, Khalid El Bikri* |
| **C 18333** REDUCTION OF SEISMIC LOADING ON STRUCTURES INDUCED BY PILES IN INHOMOGENEOUS SOIL  
*Emmanouil Rovithis, Raffaele Di Laora, Maria Iovino, Luca De Sanctis* |
| **C 18510** DYNAMICS OF AN UNDERGROUND PIPELINE WITH SLIPPING CONTACT AT SOIL-PIPILE INTERFACE UNDER SEISMIC EXCITATION: ANALYTICAL AND NUMERICAL INVESTIGATION OF COUPLED PROBLEMS  
*Mukhady Sh. Israilov, Shakhzod M. Takhirov* |
| **C 18474** EXPANSION OF THE LUMPED PARAMETER METHOD TO NONLINEAR, SOIL-STRUCTURE INTERACTING DYNAMIC SYSTEMS BY MEANS OF A MULTI-OBJECTIVE OPTIMIZATION ALGORITHM  
*Nikolaos Lesgidis, Anastasios Sextos, Oh-Sung Kwon* |

### COMPDYN MS 20: SEISMIC RESILIENCE OF CRITICAL INFRASTRUCTURE AND LIFELINES

**MS Organizers:** Ivo Vanzi, Anastasios Sextos, Michalis Fragiadakis, Spyros Karamanos  
**Chair:** Anastasios Sextos, Michalis Fragiadakis

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*Oreste S. Bursi, Michele De Santis, Rocco Di Filippo, Benno Hoffmeister, Günter Fischbach, Jonas Korndörfer, Elisabetta Mecoazzi, Vincenzo La Salandra, Massimiliano Pedot, Md Shahin Reza* |
| **C 18232** RELIABILITY ANALYSIS OF URBAN WATER SYSTEMS UNDER SEISMIC ACTION  
*Alessandro Rasulo* |
| **C 18354** SEISMIC SAFETY EVALUATION OF HISTORICAL CENTRES  
*Ivo Vanzi, Samuele Biondi, Alessandra Fiore, Concetta Sulpizio, Nicola Cataldo, Carlo Rago* |
| **C 18446** DEFINING THE NETWORK RESOLUTION FOR THE RELIABILITY AND RESILIENCE ASSESSMENT OF CRITICAL INFRASTRUCTURE  
*Roberto Guidotti, Paolo Gardoni* |
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#### Friday, June 16

**17:00-19:00**

**Gamma**

**COMPDYN RS 30: CONCRETE STRUCTURAL MEMBERS**

Chair: Elide Nastri, Paola Ceresa

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**Epsilon**

**COMPDYN RS 19 - II: SEISMIC RISK AND RELIABILITY ANALYSIS**

Chair: Jelena Andric

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### Friday, June 16
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**COMPDYN RS 12 - III: NUMERICAL SIMULATION METHODS FOR DYNAMIC PROBLEMS**

- **Chair**: Le Hung Tran

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<td>ANALYTICAL MODEL OF THE DYNAMICS OF RAILWAY SLEEPER</td>
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<td><em>Aadhish Man Rajbhandari, Naveed Anwar, Fawad Najam</em></td>
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### UNCECOMP MS 2: ENGINEERING ANALYSES WITH VAGUE AND IMPRECISE INFORMATION

- **MS Organizers**: Edoardo Patelli, Bruno Sudret, Matteo Broggi, Michael Beer
- **Chair**: Edoardo Patelli, Bruno Sudret

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Suite 213

**UNCECOMP RS 12 - II: UNCERTAINTY QUANTIFICATION**

*Chair:* Michalis Chatzimanolakis, Ulrich Römer

**U 16935** QUANTIFICATION OF METAL UNCERTAIN PARAMETERS FOR THE INSTABILITY OF INTERFACE DRIVEN BY CYLINDRICAL IMPLOSION

*Yanjin Wang, Jun Liu*

**U 17148** UNCERTAINTY QUANTIFICATION FOR A SINGULAR ELECTROTHERMAL COUPLED PROBLEM WITH ERROR CONTROL

*Ulrich Römer, Thorben Casper, Sebastian Schöps*

**U 17199** POLYMORPHIC UNCERTAINTY QUANTIFICATION FOR STABILITY ANALYSIS OF FLUID SATURATED SOIL AND EARTH STRUCTURES

*Carla Henning, Tim Ricken*

**U 17216** BAYESIAN APPROACH TO SCATTEROMETRY: SAMPLING-FREE UNCERTAINTY ESTIMATION

*Sebastian Heidenreich, Hermann Groß, Markus Bär*

**U 17219** ON THE DEVELOPMENT OF THE 3D EULER EQUATIONS USING INTRUSIVE PCE FOR UNCERTAINTY QUANTIFICATION

*Kyriakos Dimitrios Kantarakias, Michalis Chatzimanolakis, Varvara G. Asouti, Kyriakos C. Giannakoglou*

**U 17225** THE NON-PARAMETRIC APPROACH TO THE QUANTIFICATION OF THE UNCERTAINTY IN THE DESIGN OF EXPERIMENTS MODELLING

*Jacek Pietraszek, Renata Dwornicka, Mariusz Krawczyk, Maciej Kołomycki*

Friday, June 16
17:00-19:00
Suite 311

**UNCECOMP RS 17: SYSTEM RELIABILITY ANALYSIS, DESIGN AND RISK ASSESSMENT**

*Chair:* Adrián David García-Soto, Alessandro Barbiero

**U 16706** RELIABILITY OF PRESTRESSED CONCRETE BRIDGE GIRDERS USING FIELD INFORMATION AND THE COMBINED APPROACH

*Adrián David García-Soto, Alejandro Hernández-Martínez, Jesús Gerardo Valdés-Vázquez*

**U 16870** ASSESSING HOW THE DEPENDENCE STRUCTURE AFFECTS THE RELIABILITY PARAMETER OF THE STRENGTH-STRESS MODEL

*Alessandro Barbiero*

**U 17026** COMPUTATIONAL ASPECTS OF RBFN META-MODELS FOR MULTI-OBJECTIVE RBDO FORMULATION

*Adéla Hlobilová, Matěj Lepš*

**U 17104** ROBUST ARTIFICIAL NEURAL NETWORK FOR RELIABILITY ANALYSIS

*Uchenna Oparaji, Rong-Jiun Sheu, Edoardo Patelli*

**U 17171** A NEW NESTED SPACE-FILLING DESIGNS ON EXPERIMENTS WITH DIFFERENT RANGES OF FACTORS

*Jin Xu, Xiaojun Duan, Zhengming Wang, Liang Yan*

**U 17195** SEISMIC SAFETY ASSESSMENT BY AN ENHANCED MONTE CARLO METHOD

*Christian Gasser, Christian Bucher*
U 17209  VULNERABILITY OF HYDROPOWER INSTALLATIONS TO CLIMATE CHANGE: PRELIMINARY STUDY  
*Silvia Tolo*, Edoardo Patelli, Diyi Chen

Friday, June 16  
17:00-19:00

**COMPDYN RS 11 - III: NONLINEAR DYNAMICS**  
Chair: K. H. Kim

**C 17699** HYSTERETIC MODEL FOR THE EXPLICIT MATERIAL POINT METHOD  
*Christos D. Sofianos, Vlasis K. Koumousis*

**C 17948** THE EVALUATION APPROACH OF SPENT NUCLEAR FUEL INTERGRITY BY USING FINITE ELEEMENT METHOD  
*K. H. Kim, Y. I. Yoo, O C. Kwon, J. K. Park, K. B. Eom, S. K. Lee, J. S. Yoo*

**COMPDYN MS 35: SIMPLIFIED METHODOLOGIES AND NUMERICAL TOOLS FOR THE SEISMIC RISK MITIGATION OF BUILDINGS: RECENT ADVANCES AND OPEN CHALLENGES**  
MS Organizers: Donatello Cardone, Angelo Masi, Marco Vona  
Chair: Marco Vona

**C 18246** NEW SEISMIC RISK INDEX FOR EXISTING BUILDINGS  
*Monica Mastroberti, Marco Vona*

**C 17237** APPROACH TO PREDICTION OF R/C BUILDINGS’ SEISMIC DAMAGE AS PATTERN RECOGNITION PROBLEM USING ARTIFICIAL NEURAL NETWORKS  
*Konstantinos Morfidis, Konstantinos Kostinakis*

**C 17856** FLORENCE: SEISMIC ASSESSMENT OF NOT-HISTORICAL MASONRY BUILDINGS POPULATION  
*Giulia Metelli, Tommaso Rotunno, Marco Tanganelli, Stefania Viti*

**C 18165** NOVEL MODELS AND TOOLS TO EVALUATE THE ECONOMIC FEASIBILITY OF RETROFITTING INTERVENTION  
*Marco Vona, Monica Mastroberti, Benedetto Manganelli*

**C 17993** SEISMIC ASSESSMENT OF A RC CASE STUDY BUILDING USING THE SIMPLE LATERAL MECHANISM ANALYSIS, SLAMA, METHOD  
*Roberto Gentile, Ciro Del Vecchio, Giuseppina Uva, Stefano Pampanin*
### TECHNICAL SESSIONS

#### Saturday, June 17

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| 9:00-10:30    | Delphi         | **COMPDYN MS 26 - I: THE SINAPS® FRENCH RESEARCH PROJECT ON INTEGRATED SEISMIC RISK ASSESSMENT FOR NUCLEAR SAFETY**

**MS Organizers:** Panagiotis Kotronis, Fabrice Gatuingt, Catherine Berge-Thierry

**Chair:** Panagiotis Kotronis

**C 17811**  
**SINAPS®: A MULTIDISCIPLINARY FRENCH RESEARCH PROJECT TO IMPROVE THE SEISMIC RISK ANALYSIS OF NUCLEAR FACILITIES**  
*Catherine Berge-Thierry, François Voldoire, Frédéric Ragueneau, Fernando Lopez-Caballero, Marc Nicolas, Alain Le Maoult*

**C 17257**  
**KEYNOTE: A NOVEL MULTI-FIBER TIMOSHENKO BEAM FINITE ELEMENT FORMULATION WITH EMBEDDED DISCONTINUITIES TO SIMULATE THE BEHAVIOR OF REINFORCED CONCRETE STRUCTURE TILL FAILURE**  
*Ibrahim Bitar, Nathan Benkemoun, Panagiotis Kotronis, Stéphane Grange*

**C 17164**  
**RESPONSE-SPECTRUM COMPATIBLE RECORD SELECTION FOR NONLINEAR STRUCTURAL ANALYSIS**  
*Levent Isbiliroglu, Maria Lancieri, Philippe Gueguen*

**C 17197**  
**DYNAMIC SOIL-STRUCTURE INTERACTION MODELING STRATEGIES APPLIED TO KASHIWAZAKI-KARIWA NUCLEAR POWER PLANT CASE-STUDY**  
*Vinicius Alves Fernandes, Fabien Banci, Georges Devesa, Nicolas Greffet, Matthieu Jacquet, Marc Kham, Alex Nieto-Ferro, François Voldoire, Irmela Zentner*

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| 9:00-10:30    | Salon des Roses A | **COMPDYN MS 15 - I: NON-LINEAR DYNAMICS AND WAVE PROPAGATION**

**MS Organizers:** Jiri Naprstek, Radek Kolman, Anton Tkachuk, K.C. Park

**Chair:** Jiri Naprstek, K.C. Park

**C 17731**  
**AN EXPLICIT TIME SCHEME WITH LOCAL TIME STEPPING FOR ONE-DIMENSIONAL WAVE AND IMPACT PROBLEMS IN LAYERED AND FUNCTIONALLY GRADED MATERIALS**  
*Radek Kolman, Sang Soon Cho, K.C. Park, Jose A. González*

**C 17792**  
**INVERSE MASS MATRIX VIA THE METHOD OF LOCALIZED LAGRANGE MULTIPLIERS**  
*José A. González, R. Kolman, S.S. Cho, C.A. Felippa, K.C. Park*

**C 18027**  
**ESTIMATION OF STABILITY LIMIT BASED ON GERSHGORIN'S THEOREM FOR EXPLICIT CONTACT-IMPACT ANALYSIS SIGNORINI PROBLEM USING BIPENALTY APPROACH**  
*Dušan Gabriel, Anton Tkachuk, Ján Kopačka, Radek Kolman, Michal Mracko, Manfred Bischoff, Jiří Plešek*

**C 18030**  
**PROPAGATION OF NON-STATIONARY WAVES IN VISCOELASTIC STRIP COMPOSED OF ORTHOTROPIC LAYERS**  
*Vitezslav Adamek, Frantisek Vales, Jan Cerv*

**C 18256**  
**MODELLING OF EVANESCENT AND PROPAGATING MODES IN HOMOGENIZED PHONONIC STRUCTURES IN FREQUENCY AND TIME DOMAINS**  
*Eduard Rohan, Robert Cimrman*
**DAY 3 – SATURDAY, JUNE 17**

**Saturday, June 17**  
9:00-10:30  
Salon des Roses B

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Athena

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<td>Andrea Miano, Fatemeh Jalayer, Andrea Prota</td>
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9:00-10:30  
Nefeli A

**UNCECOMP MS 9 - II: UNCERTAINTY COMPUTATIONS WITH REDUCED ORDER MODELS AND LOW-RANK REPRESENTATIONS**

*MS Organizers:* Hermann G. Matthies, Martin Eigel, Lars Grasedyck, Anthony Nouy, Reinhold Schneider  
*Chair:* Hermann G. Matthies, Anthony Nouy

**U 17114** KEYNOTE: AN ADAPTIVE SAMPLING METHOD FOR THE APPROXIMATION OF MULTIVARIATE FUNCTIONS IN TREE-BASED TENSOR FORMATS  
*Anthony Nouy*

**U 17017** PROBABILISTIC ROBUSTNESS, SENSITIVITY ANALYSIS, AND IDENTIFICATION OF A REDUCED ORDER MODEL FOR THE CONTROL OF CYLINDRICAL WAKE FLOW  
*Noémi Friedman*

**U 17027** EFFICIENT BAYESIAN INVERSION WITH HIERARCHICAL TENSOR REPRESENTATIONS  
*Martin Eigel*, Manuel Marschall, Reinhold Schneider

**U 17124** A LOW-RANK METHOD ADAPTED TO RANDOMLY PERTURBED PERIODIC HETEROGENEOUS MEDIA  
*Quentin Ayoul-Guilmard*, Anthony Nouy, Christophe Binetruy, Sébastien Comas

Saturday, June 17  
9:00-10:30  
Nefeli B

**COMPDYN MS 8 - I: SEISMIC SAFETY ASSESSMENT OF STRUCTURES**

*MS Organizers:* Pedro Delgado, António Arêde, Raimundo Delgado  
*Chair:* Pedro Delgado, Claudia Zelaschi

**C 18226** KEYNOTE: COST OF REPAIR AND RETROFIT OF SEISMIC DAMAGE OF RC HOLLOW-PIERS  
*Pedro Delgado*, Nelson Sá, Mário Marques, António Arêde

**C 16952** MODELLING UNCERTAINTY IN EXISTING ITALIAN RC FRAMES  
*Gerard O’Reilly*, Timothy Sullivan

**C 16987** A MECHANIC BASED MODEL FOR DEFINITION OF SEISMIC RISK AND REAL TIME DAMAGE SCENARIO OF BUILDINGS  
*Marta Faravelli*, Barbara Borzi, Antonella Di Meo, Diego Polli

**C 17003** TOWARDS A TAXONOMY FOR PORTUGUESE RC BRIDGES  
*Claudia Zelaschi*, Ricardo Monteiro

**C 17065** SCALE MODELS FOR THE EXPERIMENTAL ANALYSIS OF THE COLLAPSE MECHANISMS OF MASONRY BAY WINDOWS UNDER HORIZONTAL ACTIONS  
*Riccardo Barsotti*, Stefano Bennati, John A. Ochsendorf, Claudio Tirabasso
### DAY 3 – SATURDAY, JUNE 17

#### Alpha

**COMPDYN MS 17 - I: COMPUTATIONAL ISSUES IN EARTHQUAKE ENGINEERING**

*MS Organizers:* Aram Soroushian, Fereydoon Arbabi  
*Chair:* Fereydoon Arbabi, Aram Soroushian

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#### Gamma

**UNCECOMP MS 8 - I: BAYESIAN ANALYSIS OF NUMERICAL MODELS**

*MS Organizers:* Iason Papaioannou, Daniel Straub, Costas Papadimitriou  
*Chair:* Jonas Latz

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#### Epsilon

**COMPDYN RS 19 - III: SEISMIC RISK AND RELIABILITY ANALYSIS**

*Chair:* Ufuk Hancilar

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Zehra Cagnan, Sinan Akkar

C 18938  SIMULATED DESIGN PROCEDURE FOR AN IMPROVED SEISMIC VULNERABILITY ASSESSMENT OF
EXISTING RC BRIDGES
Paola Ceresa, Lorenzo Marziali

Saturday, June 17
9:00-10:30  Suite 211

COMPDYN RS 5 - I: DYNAMICS OF COUPLED PROBLEMS
Chair: Dimitris L. Karabalis

C 18515  SEISMIC ANALYSIS OF A HISTORIC WATER TOWER: A FLUID-STRUCTURE-SOIL INTERACTION
PROBLEM
Angeliki Zanni, Michail Spyridis, Dimitris L. Karabalis

C 17251  STABILITY OF FLUID-STRUCTURE INTERACTION ANALYSIS CONSIDERING ACTIVE CONTROL
Shigeki Kaneko, Giwon Hong, Tomonori Yamada, Shinobu Yoshimura

C 18562  DEVELOPMENT OF AMPLIFIED SEISMIC RESPONSE SPECTRA FOR STRUCTURAL ANALYSIS OF
DECOUPLED SMALL BORE PIPES
Anders Blom

C 17061  SEISMIC DESIGN OF ABOVEGROUND STORAGE TANKS CONTAINING LIQUID
Martin Sivy, Milos Musil

C 18467  NUMERICAL SIMULATION OF SOIL-STRUCTURE INTERACTION: A PARAMETRIC STUDY
Maria Giovanna Durante, Luigi Di Sarno, Armando Lucia Simonelli

Saturday, June 17
9:00-10:30  Suite 213

COMPDYN MS 16: INSTRUMENTATION OF STRUCTURES AND SSI SYSTEMS UNDER DYNAMIC EXCITATIONS
MS Organizers:  Emmanouil Rovithis, Christos Karakostas
Chair: Emmanouil Rovithis, Christos Karakostas

C 17812  EFFECT OF SOIL-STRUCTURE INTERACTION ON THE SEISMIC RESPONSE OF AN INSTRUMENTED
BUILDING DURING THE CEPHALONIA, GREECE EARTHQUAKE OF 26-1-2014
Christos Karakostas, George Kontogiannis, Konstantinos Morfidis, Emmanouil Rovithis, George
Manolis, Nikolaos Theodoulidis

C 17424  QUASI-KINEMATIC RESPONSE OF EMBEDDED FOUNDATIONS: EVIDENCE OF FOUNDATION MASS
EFFECT FROM NUMERICAL ANALYSES AND INSTRUMENTED STRUCTURES
Riccardo Conti, Marco Morigi, Giulia Viggiani, Emmanouil Rovithis, Nikos Theodoulidis, Christos
Karakostas

C 18006  SYSTEM IDENTIFICATION FROM VERTICAL DOWNHOLE ARRAY DATA
Erdal Safak, Eser Cakti

C 18213  EQUIVALENT-LINEAR DYNAMIC STIFFNESS OF SURFACE FOOTINGS ON LIQUEFIABLE SOIL
Xenia Karatzia, George Mylonakis, George Bouckovalos
### UNCECOMP MS 11 - I: UNCERTAINTY QUANTIFICATION ACROSS MULTIPLE SCALES FOR SOLID MECHANICS

**MS Organizers:** Savvas Triantafyllou, Eleni Chatzi, Manolis Chatzis  
**Chair:** Manolis Chatzis

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<tr>
<td><strong>Adrian W. Egger, Savvas P. Triantafyllou, Eleni N. Chatzi</strong></td>
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### COMPDYN RS 18 - I: SEISMIC ISOLATION

**Chair:** Marco Furinghetti, Giuseppe Ricciardi

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<td><strong>Dario De Domenico, Giuseppe Ricciardi, Gianmario Benzoni</strong></td>
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<td>C 17256</td>
<td>EFFECTS OF EQUIVALENT RADIAL ACCELEROMGRAMS FOR BIDIRECTIONAL SEISMIC EVENTS ON BASE-ISOLATED STRUCTURES</td>
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<td><strong>Marco Furinghetti, Alberto Pavese, Antonio Foti</strong></td>
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<td>RESIDUAL LOAD CAPACITY OF FIRE-DAMAGED RUBBER BEARINGS FOR R.C. BASE-ISOLATED BUILDINGS SUBJECTED TO NEAR-FAULT EARTHQUAKES</td>
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<td>CALIBRATION OF CONSTITUTIVE MACRO MODEL FOR A LEAD-CORE BEARING DEVICE IDENTIFICATION BASED ON RESULTS OBTAINED BY FINITE ELEMENT ANALYSIS</td>
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<td><strong>Todor Zhelyazov, Rajesh Rupakhety, Simon Olafsson</strong></td>
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**Coffee Break**
## PLENARY LECTURES

### Saturday, June 17

**11:00-13:00**

**Chair:** Dan M. Frangopol

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<td>K. C. Park</td>
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<td>C 19428</td>
<td>SITE SPECIFIC DYNAMICS OF STRUCTURES: FROM SEISMIC SOURCE TO THE SAFETY OF OCCUPANTS AND CONTENT</td>
<td>Boris Jeremic</td>
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<td>PASSIVE BLAST AND SEISMIC MITIGATION OF LARGE-SCALE CIVIL INFRASTRUCTURE BY IMPLEMENTATION OF INTENTIONAL STRONG NONLINEARITY</td>
<td>Alexander Vakakis</td>
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### Saturday, June 17

**11:00-13:00**

**Chair:** Hector Jensen

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<td>Martin Ostoj-Starzewski, Anatoliy Malyarenko</td>
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<td>Arvid Naess</td>
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<td>PHYSICAL STOCHASTIC SYSTEM: A NEW VIEW ABOUT OBJECTIVE WORLD</td>
<td>Jie Li</td>
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**13:00-14:30**

Lunch Break
## DAY 3 – SATURDAY, JUNE 17

### TECHNICAL SESSIONS

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<td>PANAGIOTIS KOTRONIS, FABRICE GATUINGT, CATHERINE BERGE-THIERRY</td>
<td>CATHERINE BERGE-THIERRY</td>
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<td>HOW ARE THE EQUIVALENT DAMPING RATIOS MODIFIED BY NONLINEAR ENGINEERING</td>
<td>Thomas Heitz, Cédric Giry, Benjamin Richard, Frédéric Ragueneau</td>
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<td>DEMAND PARAMETERS?</td>
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<td>STRUCTURE-SOIL-STRUCTURE INTERACTION ANALYSIS OF NUPEC TEST CASES</td>
<td>Sara Touhami, Vinicius Alves Fernandes, Fernando Lopez Caballero</td>
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<td>PHYSICS-BASED SEISMIC SCENARIO OF THE 2007 CHUETSU-OKI EARTHQUAKE</td>
<td>Filippo Gatti, Fernando Lopez-Caballero, Lucio De Abreu Corrêa, Didier Clouteau, Roberto Paolucci</td>
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<td>A NEW GLOBAL MODEL FOR CRACKING IN RC WALLS AND SLABS UNDER SEISMIC</td>
<td>Miquel Huguet, Silvano Erlicher, Panagiotis Kotronis, François Valdoire</td>
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<td>ENHANCEMENT OF MULTIFIBER BEAM ELEMENTS IN THE CASE OF REINFORCED</td>
<td>Natalia Khoder, Stéphane Grange, Yannick Sieffert</td>
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<td>CONCRETE STRUCTURES FOR TAKING INTO ACCOUNT THE LATERAL CONFINEMENT</td>
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<td>NON-LINEAR DYNAMICS AND WAVE PROPAGATION</td>
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<td>KEYNOTE: ANALYTICAL APPROACH OF SLENDER STRUCTURE VIBRATION DUE TO RANDOM COMPONENT OF THE WIND VELOCITY</td>
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<td>ANDREI ABRAMIAN, SERGEY VAKULENKO</td>
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Salon des Roses B

COMPDYN MS 30 - IV: DYNAMICS AND SEISMIC RESPONSE OF ROCKING AND SELF-CENTERING STRUCTURES

*MS Organizers:* Elias Dimitrakopoulos, Michalis Fragiadakis, Michalis Vassiliou

*Chair:* Michalis Fragiadakis, Michalis Vassiliou

**C 18178** ESTIMATING THE RISK OF ROCKING SYSTEMS VERSUS LIFESPAN
*Maria Garcia Espinosa, Manolis Chatzis*

**C 16969** A CENTRIFUGE INVESTIGATION OF TWO DIFFERENT SOIL-STRUCTURE SYSTEMS WITH ROCKING AND SLIDING ON DENSE SAND
*Iason Pelekis, Gopal Madabhushi, Matthew Dejong*

**C 19728** LOSS ASSESSMENT OF ROCKING NON-STRUCTURAL COMPONENTS OF BUILDINGS
*Michalis Fragiadakis, Marietta-Eleni Kolokytha, Spyridon Diamantopoulos*

**C 18454** ENERGY DISSIPATION INVOLVED IN THE OUT-OF-PLANE RESPONSE OF UNREINFORCED MASONRY WALLS
*Umberto Tomassetti, Francesco Grazioti, Andrea Penna, Guido Magenes*

**C 18485** PROBABILISTIC VALIDATION OF THE HOUSNER ROCKING MODEL
*Jonas Bachmann, Mathias Strand, Michalis Vassiliou, Marco Broccardo, Bozidar Stojadinovic*

**C 18339** VULNERABILITY ASSESSMENT OF FLAG-SHAPED HYSTERETIC ROCKING BRIDGE BENTS
*Anastasios I. Giouvanidis, Michalis Fragiadakis, Elias G. Dimitrakopoulos*

Saturday, June 17 14:30-16:30
Athena

COMPDYN MS 12 - II: ADVANCES IN MODEL REDUCTION TECHNIQUES IN STRUCTURAL AND MULTI-PHYSICS DYNAMICAL SYSTEMS

*MS Organizers:* Jin-Gyun Kim, K.C. Park, Roger Ohayon

*Chair:* Dario Richiedei

**C 17595** MODEL REDUCTION THROUGH ENHANCED CRAIG-BAMPTON TRANSFORMATION AND INTERIOR MODE SELECTION
*Ileria Palomba, Dario Richiedei, Alberto Trevisani, Jin-Gyun Kim*

**C 17617** PARTITIONED COMPONENT MODE SYNTHESIS VIA A STIFFNESS APPROACH
*In Seob Chung, Soo-Won Chae, Jin-Gyun Kim, K. C. Park*

**C 18351** PROPER ORTHOGONAL DECOMPOSITION AND DISCRETE EMPIRICAL INTERPOLATION IN CFD APPLICATIONS
*Martin Isoz*

COMPDYN MS 34: VIBRATIONS, STRUCTURAL ENGINEERING AND CONTROL SYSTEMS

*MS Organizers:* Rui Carneiro Barros, Manuel Braz-Cesar

*Chair:* Rui Carneiro Barros, Manuel Braz-Cesar

**C 16735** DYNAMIC ANALYSIS AND COMFORT EVALUATION OF A FULL SUSPENSION BICYCLE EQUIPPED WITH A MR DAMPER
*Arlindo Pascoal, José Gonçalves, Manuel Braz-César*
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<td>Kellie Oliveira, Manuel Braz-César, José Gonçalves</td>
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<td>SEISMIC RESPONSE OF A CANTILEVERED HIGHWAY SIGN SUPPORT WITHOUT AND WITH A TMD DAMPER</td>
<td>Fábio Paiva, Rui Barros</td>
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<td>TUBULAR STEEL LATTICE TELECOMMUNICATION TOWERS, SUBJECTED TO WIND LOADING AND VORTEX SHEDDING</td>
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<td>Andreas Kappos, Anastasios Sextos</td>
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<td>Anastasios Sextos, Aspasia Zerva</td>
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<td>COLLAPSE RISK OF ITALIAN BUILDINGS COMPUTED USING AVERAGE SPECTRAL ACCELERATION</td>
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C 17243  DRIFT-BASED FRAGILITY ASSESSMENT OF MASONRY INFILLS
   Andrea Chiozzi, Eduardo Miranda

C 18309  FROM STRUCTURAL PERFORMANCE TO LOSS ESTIMATION FOR (RE)INSURANCE INDUSTRY NEEDS:
   AN OVERVIEW OF THE VULNERABILITY ESTIMATION APPROACHES WITHIN EARTHQUAKE
   CATASTROPHE MODELS
   Amaryllis Mouyiannou, Kirsty E. Styles

C 18415  MODIFICATION OF STOCHASTIC GROUND MOTION MODELS FOR MATCHING TARGET INTENSITY
   MEASURES
   Alexandra Tsioulou, Alexandros Taflanidis, Carmine Galasso

C 17692  SEISMIC RESILIENCE ASSESSMENT OF THE WESTERN MACEDONIA HIGHWAY NETWORK IN GREECE
   Anastasios Sextos, Ioannis Kilanitis, Andreas Kappos, Magda Pitsiava, Georgios Serdiadis, Basil
   Margaris, Nikolaos Theodoulidis, Georgios Mylonakis, Panagiotis Panetsos, Kalliopi Kyriakou

Saturday, June 17
14:30-16:30  Nefeli A

UNCECOMP MS 9 - III:  UNCERTAINTY COMPUTATIONS WITH REDUCED ORDER MODELS AND LOW-RANK
   REPRESENTATIONS
MS Organizers:  Hermann G. Matthies, Martin Eigel, Lars Grasedyck, Anthony Nouy, Reinhold Schneider
Chair:  Hermann G. Matthies, Anthony Nouy

U 17133  LOW-RANK SEMI-INTRUSIVE SOLVERS FOR NONLINEAR PARAMETRIC EQUATIONS
   Loïc Giraldi, Anthony Nouy

U 17166  LOW RANK APPROXIMATION AND CHANGE OF VARIABLE FOR UNCERTAINTY QUANTIFICATION
   USING SAMPLING BASED METHODS
   Mathilde Chevreuil, Erwan Grelier, Anthony Nouy

UNCECOMP RS 16:  STOCHASTIC FRACTURE AND DAMAGE
Chair:  Ehsan Adeli

U 17198  IDENTIFICATION OF A VISCO-PLASTIC MODEL WITH UNCERTAIN PARAMETERS USING BAYESIAN
   METHODS
   Ehsan Adeli, Bojana Rosic, Hermann G. Matthies

U 16710  RANDOM AND GRADIENT BASED FIELDS IN DISCRETE PARTICLE MODELS OF HETEROGENEOUS
   MATERIALS
   Jan Podroužek, Jan Vorel, Roman Wan-Wendner

U 17032  STOCHASTIC MODELLING OF RAIL FATIGUE
   Alfonso Michele Panunzio, Guillaume Puel, Régis Cottereau, Samuel Simon, Xavier Quost

U 17073  EVOLUTION OF CRACK PATTERNS AND BUCKLES IN LAYERED THIN FILM SYSTEMS – EFFECT OF
   UNCERTAINTIES IN THE MATERIAL PROPERTIES
   Franz G. Rammerstorfer, Florian Toth

U 17076  FATIGUE DAMAGE MODEL OF WIND TURBINE COMPOSITE BLADES UNDER UNCERTAIN WIND
   SPEED
   Chi Zhang, Hua-Peng Chen
### Saturday, June 17

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<td>C 18262</td>
<td>DOWNTIME ESTIMATION FOR RESILIENCE ASSESSMENT ACCOUNTING EXTERNAL FACTORS &lt;br&gt;<em>Mamak P. Tootkaboni, Danial Mohabat Doost, Gian Paolo Cinellaro, Gordon Warn</em></td>
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<td>C 18547</td>
<td>PERFORMANCE ASSESSMENT OF INFILLED RC STRUCTURES CONSIDERING THE INFILL MASONRY WALLS OUT-OF-PLANE BEHAVIOUR &lt;br&gt;<em>Pedro Delgado, André Furtado, Hugo Rodrigues, António Arêde, Humberto Varum</em></td>
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<td>C 17545</td>
<td>CAPACITY MODELS FOR SHEAR-CRITICAL RC BRIDGE PIERS WITH HOLLOW CROSS-SECTION &lt;br&gt;<em>Paolino Cassese, Maria Teresa De Risi, Gerardo Mario Verderame</em></td>
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<td>C 18063</td>
<td>NON-LINEAR DYNAMIC ANALYSES OF AN RC FRAME BUILDING COLLAPSED DURING L’AQUILA 2009 EARTHQUAKE &lt;br&gt;<em>Maria Gabriella Mulas, Paolo Martinelli, Susanna Capriotti</em></td>
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<td>C 18423</td>
<td>OVERLAPPING LATTICE SIMULATION OF CONCRETE GRAVITY DAM COLLAPSE SIMULATIONS &lt;br&gt;<em>Feyza Soysal Albostan, Beyazit B. Aydin, Kagan Tuncay, Yalın Arıcı, Baris Binici</em></td>
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<td>SEISMIC RESPONSE OF RC BRIDGES USING GENERALISED FORCE VECTORS &lt;br&gt;<em>Camilo Perdomo, Ricardo Monteiro, Haluk Sucuoglu</em></td>
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<td>C 18615</td>
<td>SEISMIC BEHAVIOUR OF POORLY DETAILED RC BRIDGE PIERS WITH HOLLOW CROSS-SECTION &lt;br&gt;<em>Paolino Cassese, Maria Teresa De Risi, Gerardo Mario Verderame</em></td>
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<td><strong>COMPDYN MS 17 - II: COMPUTATIONAL ISSUES IN EARTHQUAKE ENGINEERING</strong> &lt;br&gt;<strong>MS Organizers:</strong> Aram Soroushian, Fereydoon Arbabi &lt;br&gt;<strong>Chair:</strong> Aram Soroushian, Fereydoon Arbabi</td>
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<tr>
<td>C 17923</td>
<td>NUMERICAL STUDY ON STIFFENED STEEL PLATE SHEAR WALLS WITH CENTRAL PERFORATION &lt;br&gt;<em>Kaveh Nezamisavojbolaghi, Akam Gharani</em></td>
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<td>C 18094</td>
<td>DYNAMIC ANALYSIS OF AN EMBANKMENT DAM MAKING USE OF INCREASED TIME STEPPING &lt;br&gt;<em>Javad Jalili, Seyed Ehsan Hoseini</em></td>
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<td>C 18185</td>
<td>SECONDARY ACOUSTIC EMISSIONS IN STRESSED ROCKS &lt;br&gt;<em>Ziba Ebrahimian</em></td>
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<td>C 18427</td>
<td>EFFICIENCY OF VARIOUS INTEGRATION SCHEMES FOR PML SOLUTION OF ELASTICALLY SUPPORTED INFINITE BEAMS &lt;br&gt;<em>Nima Rasoolzadeh, Freydoon Arbabi</em></td>
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<td>C 16812</td>
<td>ESTIMATION OF MAXIMUM PEAK GROUND ACCELERATION VIA THE ANFIS AND RBF NEURAL NETWORKS &lt;br&gt;<em>Mostafa Allam Zadeh, Gholam Javan Doloiee, Ali Nasrollahnejad</em></td>
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<td>C 18585</td>
<td>IMPROVED ESTIMATION OF PIPE LEAKAGE FOR VARIOUS LEAK GEOMETRY &lt;br&gt;<em>Abdolreza Astaraki, Mahmood Hosseini, Aram Soroushian</em></td>
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UNCECOMP MS 8 - II: BAYESIAN ANALYSIS OF NUMERICAL MODELS  
*MS Organizers:* Iason Papaioannou, Daniel Straub, Costas Papadimitriou  
*Chair:* Bojana Rosic, Giovanni Capellari

**U 16977** NONLINEAR KALMAN FILTERING  
*Bojana Rosic, Hermann G. Matthies*

**U 17179** PARAMETER IDENTIFIABILITY THROUGH INFORMATION THEORY  
*Giovanni Capellari, Eleni Chatzi, Stefano Mariani*

**U 16921** PROBABILISTIC EXPECTED IMPROVEMENT FOR BAYESIAN HISTORY MATCHING  
*Alfredo Garbuno-Inigo, Francisco Alejandro Diazdelao, Konstantin M. Zuev*

**U 16922** BAYESIAN UPDATING FOR PROBABILISTIC CLASSIFICATION USING RELIABILITY METHODS  
*Paul Byrnes, Francisco Alejandro Diazdelao*

**U 16962** MULTILEVELAdaptive SPARSE GRID SURROGATES FOR BAYESIAN INVERSE PROBLEMS  
*Ionut Farcas, Tobias Neckel, Hans-Joachim Bungartz*

**U 17094** A BAYESIAN APPROACH TO MODEL CALIBRATION AND PARAMETER ESTIMATION IN POTENTIAL DROP MEASURING  
*Thomas Berg, Sven Von Ende, Rolf Lammering*

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Epsilon

COMPDYN RS 28 - II: WAVE PROPAGATION  
*Chair:* Jens Malmborg

**C 18136** PREDICTION MODELS OF FREE-FIELD VIBRATIONS FROM RAILWAY TRAFFIC  
*Jens Malmborg, Kent Persson, Peter Persson, Lars Vabbersgaard Andersen*

**C 18321** THREE-DIMENSIONAL NUMERICAL MODELING OF SEISMIC WAVE PROPAGATION IN WUDU BASIN, CHINA  
*Xiaolong Zhang, Xiaojun Li, Zhenghua Zhou, Guoxing Chen, Xiaobo Peng, Ming Lu*

**C 16936** NUMERICAL SIMULATION OF BLAST WAVE PROPAGATION IN LAYERED SOIL FEATURING SOIL-STRUCTURE INTERACTION  
*M. Abir, D. Arumugam, B. Dhana Sekaran, T. R. Subash*

COMPDYN MS 28: NEW EXPERIMENTAL TECHNIQUES FOR STRUCTURAL IDENTIFICATION AND HEALTH MONITORING  
*MS Organizers:* Kristof Maes, Edwin Reynders, Guido De Roeck  
*Chair:* Kristof Maes, Guido De Roeck

**C 17604** SYNCHRONIZATION OF DATA ACQUISITION SYSTEMS FOR THE PURPOSE OF STRUCTURAL HEALTH MONITORING  
*Kristof Maes, Edwin Reynders, Ali Rezayat, Guido De Roeck, Geert Lombaert*

**C 17026** 3D NUMERICAL SIMULATIONS OF THE SAN MARINO THIRD TOWER (MONTALE) BASED ON 3D MAPPING  
*Gianmarco Guerra, Davide Forcellini, Elona Xhixha, Giacomo Peruzzi, Dario Albarello, Eric Lo, Dominique Mayer, Sabrina Trinh, Emily Zheng, Falko Kuester*
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<td>C 17334</td>
<td>Microwave Interferometry Measurements for Railway-Specific Applications</td>
<td>Andrei Firus, Jens Schneider, Matthias Becker, Jiny Jose Pullamthara, Günther Grunert</td>
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<td>C 18154</td>
<td>Interpolation Evolution Method: Analysis of the Influence of Higher Modes Retrieved from Numerical Analyses Performed on Two Different Models of Reinforced Concrete Framed Structures</td>
<td>Chiara Iacovino, Rocco Ditommaso, Gianluca Auletta, Felice Carlo Ponzo, Maria Giuseppina Limongelli</td>
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#### COMPDYN RS 5 - II: DYNAMICS OF COUPLED PROBLEMS

**Chair:** Christos G. Karayannis

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<td>Water Towers Undergoing Dynamic Actions: Numerical Solution of Coupled FSI Problem and Applications</td>
<td>Roberto Scotta, Enrico Stecca, Antonio Larese, Riccardo Rossi</td>
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<td>C 17503</td>
<td>Torsion Effect Due to Asymmetric Seismic Pounding Between Multistory Buildings</td>
<td>Christos G. Karayannis, Maria C. Naoum</td>
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<td>C 17929</td>
<td>Inter-Story Pounding and Torsional Effect Due to Interaction Between Adjacent Multistory RC Buildings</td>
<td>Christos G. Karayannis, Maria C. Naoum</td>
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<td>C 17890</td>
<td>Dynamical Behavior of a Wind Turbine Power Train Considering a Rotor-Gearbox-Generator Coupled Model</td>
<td>Rafael Teixeira, Flavia Ohara, Matheus Milhomens, Aline Paula</td>
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### Session: Saturday, June 17 14:30-16:30  SUITE 213

#### COMPDYN MS 23: SINO-EUROPEAN RESEARCH ON EARTHQUAKE ENGINEERING

**MS Organizers:** Bruno Briseghella, Camillo Nuti, Yan Xiao  
**Chair:** Giuseppe Quaranta

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<td>Accuracy of Equivalent Linear Models for Bilinear Oscillators Under Pulse-Like Ground Motion</td>
<td>Giuseppe Quaranta, Fabrizio Mollaioli</td>
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<td>C 18329</td>
<td>Optimal Design of Tuned Mass Dampers by Performance–Cost Analysis</td>
<td>Rita Greco, Giuseppe Carlo Morano, Alessandra Fiore</td>
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<td>C 18034</td>
<td>Seismic Responses of Regular Highway Bridges Under Near-Fault Ground Motions</td>
<td>Hai-Bin Ma, Wei-Dong Zhuo, Gabriele Fiorentino, Davide Lavorato, Camillo Nuti, Ying Sun</td>
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<td>C 18040</td>
<td>Seismic Response Analysis of Continuous Highway Bridges Under Near-Fault Ground Motions</td>
<td>Hai-Bin Ma, Wei-Dong Zhuo, Davide Lavorato, Gabriele Fiorentino, Camillo Nuti, Fabio Sabetta</td>
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<td>ULTRA-HIGH-PERFORMANCE FIBER-REINFORCED CONCRETE JACKET FOR THE SEISMIC REPAIRING AND RETROFITTING OF ITALIAN AND CHINESE RC BRIDGES</td>
<td>Davide Lavorato, Alessandro Vittorio Bergami, Camillo Nuti, Bruno Briseghella, Junqng Xue, Angelo Marcello Tarantino, Giuseppe Carlo Marano, Silvia Santini</td>
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<td>C 17817</td>
<td>SEISMIC RETROFIT OF BUILDINGS WITH BACKBONE DAMPERS</td>
<td>Nefize Shaban, Seda Ozdemir, Alp Caner, Uğurhan Akyüz</td>
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**UNCECOMP MS 11 - II: UNCERTAINTY QUANTIFICATION ACROSS MULTIPLE SCALES FOR SOLID MECHANICS**  
*MS Organizers: Savvas Triantafyllou, Eleni Chatzi, Manolis Chatzis  
Chair: Katharina Kremer*

**U 17157**  
DETERIORATION OF REINFORCED CONCRETE STRUCTURES UNDER CONSIDERATION OF POLYMORPIC MULTISCALE UNCERTAINTY MODELLING  
*Katharina Kremer, Steffen Freitag, Michael Hofmann, Günther Meschke*

**U 17165**  
MULTISCALE COMPUTATIONS BASED ON MSFEM: MODEL REDUCTION AND GOAL-ORIENTED A POSTERIORI ERROR ESTIMATION  
*Frederic Legoll*

#### COMPDYN RS 26: STOCHASTIC DYNAMICS  
*Chair: George Stefanou*

**C 17761**  
STOCHASTIC RESPONSE OF NONLINEAR BASE ISOLATION SYSTEMS  
*Athinazis Markou, George Stefanou, George Manolis*

**C 17906**  
The effect of seismic loading simulation on the response variability of structures  
*Faidon-Apostolos Vagionas, George Stefanou*

**C 18464**  
BAYESIAN MODEL UPDATING USING SEQUENTIAL GAUSS-NEWTON MCMC ALGORITHM  
*Majid K. Vakilzadeh, Anders Sjögren, Anders T. Johansson, Thomas Abrahamsson*

**C 17226**  
A PREDICTION OF GROUND-MOTION ACCELERATION BY ADAPTIVE NEURO-FUZZY INFERENCE SYSTEMS: AN EXAMPLE BASED ON THE NGA-WEST 2 DATA  
*Mourad Ameur, Boumedienne Derras, Djawad Zendagui*

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**COMPDYN RS 18 - II: SEISMIC ISOLATION**  
*Chair: Fabio Mazza, Raffaele Ardito*

**C 17328**  
COMPARISON OF FRICTION MODELS FOR THE CURVED SURFACE SLIDING SYSTEM IN THE NONLINEAR SEISMIC ANALYSIS OF BASE-ISOLATED BUILDINGS  
*Fabio Mazza, Mattia Loprete*

**C 17567**  
SEISMIC ASSESSMENT OF AN UNCONVENTIONAL STRUCTURE: THE CRYOSTAT OF “CUORE” EXPERIMENT  
*Raffaele Ardito, Oliviero Cremonesi, Federico Perotti*

**C 17751**  
ON THE DESIGN OF PERFORMANCE-BASED PENTAMODE BEARINGS  
*Ada Amendola, Magdalini Titirila, Rosa Penna, Francesco Fabbrocino*
C 18107 FINITE ELEMENT MODELING OF SINGLE AND MULTI-SPERICAL FRICITION PENDULUM BEARINGS
Ioannis Kavvadias, Henrick Bibo, Lazaros Vasiliadis

C 18237 SENSITIVITY OF THE SEISMIC PERFORMANCE OF LIQUID STORAGE TANKS WITH NONLINEAR
ISOLATION SYSTEMS TO DEVIATIONS IN MECHANICAL CHARACTERISTICS OF THE SEISMIC
ISOLATORS
Elif Guler, Hatice Gazi, Cenk Alhan,

C 17777 INNOVATIVE DEVICES FOR THE BASE ISOLATION OF EXISTING BUILDINGS
Francesco Fabbrocino, Magdalini Titirla, Ada Amendola, Gianmarino Benzoni, Fernando Fraternali