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Ministero dell'Università e della Ricerca
Italiadomani PIANO NAZIONALE DI RIPRESA E RESILIENZA

DETAILED PROGRAM

Keynotes: 40 minutes each including Q&A
Presentations: 20 minutes each including Q&A
Venue: Public Library of Senigallia (https://maps.app.goo.gl/V2CtcKuRMTDfB1cF8)
Website: https://iutamgreenon.wordpress.com/

2 June 2025	
8.30-9.10	Registration
9.10-9.40	**Opening ceremony** Riccardo Pizzi – *Assessore, Municipality of Senigallia (t.b.c.)* Gian Luca Gregori – *Rector of the Polytechnic University of Marche (UNIVPM)* Enrico Quagliarini – *Head of the Department of Civil and Building Engineering, and Architecture (DICEA)* Stefano Capannelli – *President of the Ancona Engineers (Ordine degli Ingegneri della Provincia di Ancona)* Giuseppe Conte – *President of the Academy of Science of the Marche Region* Stefano Lenci – *Chair of the IUTAM Symposium* Jerzy Warminski – *Co-Chair of the IUTAM Symposium*
9.40-10.20	**Keynote lecture 1** Chair: Carlos Mazzilli Efficient energy harvesting/extraction from ambient vibration *Marian Wiercigroch*
10.20-10.40	Coffee break
10.40-12.20	**Session 1 – Energy harvesters** Chair: Yong Xu
10.40-11.00	Reduced model of a nonlinear composite energy harvester *Jerzy Warminski, Lukasz Kloda, Andrzej Mitura, Danyil Melnyk*
11.00-11.20	Multi-Harvesting: A Framework for Boosting Performance in Mechanical Energy Harvesters *Luã G. Costa, Marcelo A. Savi*
11.20-11.40	Responses of an Oscillating Water Column Wave Energy Conversion Device *Kinga Ksiazek, Tony Lewis, Sean Barrett, Vikram Pakrashi*
11.40-12.00	Novel wave energy converter based on the nonlinear dynamics of pendular power take-off systems

	Mihai Ionut Trandafir, Georgios E. Stavroulakis, Aristomenis Antoniadis, Panagiotis Alevras
12.00-12.20	Floating mass transducer as energy harvester *Andrzej Mitura, Rafał Rusinek*
12.20-13.40	Lunch
13.40-15.00	**Session 2 – Rotating systems** Chair: Marcelo A. Savi
13.40-14.00	Energy harvesting using a rotative nonlinear vibration absorber with a piezoelectric element *Breno A.P. Mendes, Eduardo A.R. Ribeiro, Carlos E.N. Mazzilli*
14.00-14.20	Nonlinear vibrations of harmonically excited wind turbine tower considering blades imbalance *Lucas da Mata Rocha Menezes, Kaio C.B. Benedetti, Paulo B. Gonçalves, Deane de Mesquita Roehl*
14.20-14.40	Numerical investigation on the dynamics of an electromagnetic rotative nonlinear energy sink (EMH-RNES) for passive suppression and energy harvesting from the galloping of prism mounted onto a nonlinear elastic support *Guilherme R. Franzini, Vitor S.F. Maciel, Livia Rampinelli Bozzo, Stefano Lenci*
14.40-15.00	Dynamics and reliability design of tilt-rotor aircraft with nonlinearity and stochasticity *Ming Kong, Bin Pei, Yong Xu*
15.00-15.20	Coffee break
15.20-16.40	**Session 3 – Advanced problems** Chair: Guilherme R. Franzini
15.20-15.40	Rate-dependent reliability analysis of a hypersonic plate with thermoacoustic loads *Yong Xu, Weili Guo*
15.40-16.00	Research on eddy current nonlinear energy sink and vibration reduction of cable *Houjun Kang, Xiankun Liu, Yunyue Cong, Xiaoyang Su*
16.00-16.20	*Pentastable composite shell for energy harvesting* *Lukasz Kloda, Danyil Melnyk, Jerzy Warminski*
16.20-16.40	Digital Twin-Driven Safety Domain Analysis for Aircraft Landing Gear Systems *Yuqian Zhang, Yongge Li, Yong Xu*
16.40	Social event – Everybody on the beaches: umbrellas reserved at the "Terrazza Marconi Beaches" (https://maps.app.goo.gl/ym3yZknGREYrr6w4A; https://www.terrazzamarconi.it/en/the-beach/)

3 June 2025	
8.40-10.20	**Session 4 – Wind turbines** Chair: Daniil Yurchenko
8.40-9.00	The Reduced Order Model for Vortex-Induced Motions Applied to a Deep-Water Floating Offshore Wind Turbine *Éverton L. de Oliveira, Celso Pesce, Giovanni Amaral, Jordi Mas-Soler, Alexandre Simos, Daniel Carvalho*
9.00-9.20	Reducing wind tower vibrations with bistable metamaterials considering soil-structure interaction *Aline Souza de Paula, Vinicius Borges, Adriano Fabro, Guilherme R. Franzini*
9.20-9.40	Finite element-based dynamic characterization of a Tension-Leg Floating Offshore Wind Turbine *Michele Serpilli, Alessandro Cameli, Giulio Ferri, Enzo Marino*
9.40-10.00	Dynamic Analysis of Variable Cross-Section Wind Turbine *Zenon J.G. del Prado, Marcus V.G. de Morais, Suzana Moreira Avila*
10.00-10.20	High Fidelity Fully Coupled Modeling of Floating Offshore Wind Turbines *Dike Osunna Paul, Vaziri Vahid, Marcin Kapitaniak*
10.20-10.40	Coffee break
10.40-11.40	**Session 5 – Solar panels and more** Chair: Jian Peng
10.40-11.00	Dynamics of Floating Solar Panels *Bidhayak Goswami, Stefano Lenci, Vikram Pakrashi*
11.00-11.20	Nonlinear Thermo-Elastic Vibrations in Slender Structures: Aerospace Solar Panels and Antennas *Simona Doneva, Emil Manoach*
11.20-11.40	Energy Generation Potential with Rigid-Flexible Body Motion *Andre L.C. Fujarra, Aline L. de Lima Gontarski, Gabriel de Paula Dittrich, Igor R.F. Gomes*
11.40-12.20	**Keynote lecture 2** Chair: Ekaterina Pavlovskaia The evolution of offshore wind in the Mediterranean sea, an Italian story *Alessandro Severini*
12.20-13.40	Lunch
13.40-15.00	**Session 6 – Impacts and time delay** Chair: Vikram Pakrashi
13.40-14.00	Impact oscillator for modeling and design of piezoelectric based energy harvesters *Dimitri Costa, Ekaterina Pavlovskaia, Marian Wiercigroch*
14.00-14.20	Global Dynamics of an Energy Harvesting Vibroimpact Pair *Lanjing Bao, Rachel Kuske, Daniil Yurchenko, Igor Belykh*
14.20-14.40	Time-delayed feedback control applied to energy generators *Dimitri Costa, Ekaterina Pavlovskaia, Vahid Vaziri, Marian Wiercigroch*
14.40-15.00	Bistable Time-Delay Feedback Hybrid Control for a Nonlinear Mooring Cable-Platform Coupling System of Floating Wind Turbines *Jian Peng, Lin Liu, Hongxin Sun, Yifan Luo, Lianhua Wang, Stefano Lenci*

15.00-15.20	Coffee break
15.20-16.40	**Session 7 – Vortex Induced Vibrations aspects** Chair: Oded Gottlieb
15.20-15.40	Energy harvesting from an orthotropically stiffened flexible device under VIV: experimental and analytical challenges *Letícia S. Madi, Guilherme Vernizzi, Guilherme R. Franzini, Celso Pesce*
15.40-16.00	IMU Sensing for VIV on an Umbilical Cable *Aline Leal de Lima Gontarski, Andre Luis Condino Fujarra, Thiago Antonio Fiorentin, Andrea Piga Carboni, Marcos Rabelo, Fabio Pompeo da Silva Mineiro, Carlos Alberto Duarte de Lemos*
16.00-16.20	Numerical Investigation of Vortex-Induced Vibration in Wind Turbines Using a Nonlinear Oscillator Phenomenological Model *Filipe Ossege, Aline de Paula, Marcelo Savi*
16.20-16.40	Development of a novel ultra-low frequency electromagnetic tuned inerter-mass dampers for the vibraton control of a semi-submersible floating offshore wind turbine platform *Yifan Luo, Hongxin Sun, Jian Peng*
16.40	Social event – Everybody on the beaches: umbrellas reserved at the "Terrazza Marconi Beaches" (https://maps.app.goo.gl/ym3yZknGREYrr6w4A; https://www.terrazzamarconi.it/en/the-beach/)

4 June 2025	
8.40-9.20	**Keynote lecture 3** Chair: Ivana Kovacic Non-linear fluid-structure interactions of wind turbine support structures explored through full-scale investigation *Rüdiger Höffer (with Ika Kurniawati1, Francesca Lupi, Marc Seidel)*
9.20-10.20	**Session 8 – Magnetic effects** Chair: Pedro Ribeiro
9.20-9.40	The spatiotemporal whirling response of thermo-visco-elastic nano-resonators to magnetomotive excitation *Chen Shmulamn, Oded Gottlieb*
9.40-10.00	Instability of a high-speed moving mass suspended electromagnetically from a periodically supported beam *Karel N. van Dalen, Rens J. van Leijden, Andrei B. Fărăgău, Jithu Paul, Andrei V. Metrikine*
10.00-10.20	Design and Optimization of a Magnetic Actuator-Integrated Walking Energy Harvester for Enhanced Efficiency *Hassen M. Ouakad*
10.20-10.40	Coffee break
10.40-12.20	**Session 9 – Nonlinear effects** Chair: Muhammad Hajj
10.40-11.00	Effects of non-linear constitutive behaviour on flutter of CNT-reinforced composite beams *Pedro Camacho, Pedro Ribeiro, Hamed Akhavan, José Dias Rodrigues*
11.00-11.20	Nonlinear vibrations and stability of a slightly curved beam with 'class-consistent' boundary conditions *Sergey Sorokin, Stefano Lenci*
11.20-11.40	Nonlinear resonant behaviour of piezoelectric macro fibre transducers: Experimental studies and identification of constitutive properties *Jarosław Latalski, Joanna Dubicka-Nowak, Łukasz Kłoda, Jerzy Warminski*
11.40-12.00	Estimation of peak efficiency of nonlinear galloping energy harvesters by means of Jacobi elliptic functions *Filip Sarbinowski, Roman Starosta, Jan Awrejcewicz*
12.00-12.20	An isogeometric analysis formulation for the nonlinear dynamics of mooring cables for floating offshore structures *Diego Ignesti, Giulio Ferri, Enzo Marino*
12.20-13.40	Lunch
13.40-15.00	**Session 10 – Hydrodynamics aspects** Chair: Emil Manoach
13.40-14.00	Modeling the Hydrodynamic Response of a Roll-Based Wave Energy Converter *Mahmoud Ayyad, David Plaza, Ruben J. Paredes, Jia Mi, Raju Datla, Muhammad Hajj*
14.00-14.20	Hydrodynamical responses of a novel spar-type floating offshore wind turbine: experiments and modelling *Alicia Terrero Gonzalez, Saishuai Dai, Richard Neilson, Marcin Kapitaniak*
14.20-14.40	Nonlinear hydrodynamics effects on a spar-type floating offshore wind turbine *Pierpaolo Loprieno, Elisa Leone, Dora Foti, Giuseppe Roberto Tomasicchio, Agostino Luria*

14.40-15.00	Preliminary numerical results for the characterization of nonlinear hydrodynamic damping of a TLP floater *Gianluca Zitti, Seyyed M. Mousavi, Maurizio Brocchini*
15.00-15.20	Coffee break
15.20-16.40	**Session 11 – Energy harvesting by different means** Chair: Tieding Guo
15.20-15.40	Exploiting bursting oscillation for energy harvesting: from a new model to forward-look prospects *Ivana Kovacic, Daniil Yourchenko, Wenhua Yang, Sonja Balac*
15.40-16.00	Linear and nonlinear vibration of micro-cantilever in rarefied gas flow-applications in MEMS and energy-harvesting devices *Emil Manoach, Kiril Shterev, Simona Doneva*
16.00-16.20	Nonlinear-fractional type Kelvin–Voigt–Faraday model for piezoelectric energy harvesting for liquid dispersion *Andjelka Hedrih, Katica (Stevanović) Hedrih*
16.20-16.40	Energy harvesting in a forced Duffing-Rayleigh oscillator with a resonant van der Pol circuit *Mustapha Hamdi, Mohamed Belhaq*
16.40	Social event – Everybody on the beaches: umbrellas reserved at the "Terrazza Marconi Beaches" (https://maps.app.goo.gl/ym3yZknGREYrr6w4A; https://www.terrazzamarconi.it/en/the-beach/)
19.30	Social dinner – Restaurant "Il mare in Terrazza" (https://maps.app.goo.gl/uvv78WJ3t7HnZkhe7; https://www.terrazzamarconi.it/en/dining/)

5 June 2025	
8.40-10.20	**Session 12 – Data-driven and wind turbines** Chair: Celso Pesce
8.40-9.00	Minimal-data-driven estimation of unstable solutions: Application to a simplified floating wind turbine model *Giuseppe Habib*
9.00-9.20	Physics-informed data-driven model reduction of nonlinear structures: symbolic regression vs. deep learning *Tieding Guo, Sitai Zhao, Rui Yi*
9.20-9.40	A floating absorber for floating offshore wind turbines on triple spar supports *Gioacchino Alotta, Carlo Ruzzo, Felice Arena, Giuseppe Failla*
9.40-10.00	NLTVA to suppress coupled oscillations of a wind turbine tower *Dhananjay Tandel, Pankaj Wahi, Stefano Lenci*
10.00-10.20	Nonlinear Oscillations of Spar-type Floating Offshore Wind Turbines under Parametric Excitations *Stefano Lenci, Marco Luciani*
10.20-10.40	Coffee break
10.40-12.20	**Session 13 – Theoretical developments** Chair: Andjelka Hedrih
10.40-11.00	Automatized Identification of Hidden Limit Cycles for Hilbert's Sixteenth Problem via Neural Network with Attention Mechanisms *Nico Novelli, Attila Genda*
11.00-11.20	Mathematical model of the dynamic response of circular cylinders to aerodynamic interference *Ewa Błazik-Borowa*
11.20-11.40	Multimodal Nonlinear Control of Galloping in Overhead Transmission Lines *Zacarias Mbaki, Alireza Ture Savadkoohi, Sebastien Langlois*
11.40-12.00	Boundary resonant modulation of an inextensible cantilever beam coupled with the moving foundation *Yunyue Cong, Houjun Kang, Tieding Guo, Xiaoyang Su*
12.00-12.20	A Generalized $\boldsymbol{lp}$ Hyper-Ellipsoid Approach for Local Integrity Measures of Safe Basins *Attila Genda, Nico Novelli, Alexander Fidlin, Oleg Gendelman*
12.20-12.30	Closing ceremony
12.30-14.10	Lunch
14.30	**Opening of the summer school on "Floating Offshore Wind Turbine", satellite event**