Decreto Rettore Università di Roma “La Sapienza” n 864/2021 del 23.03.2021
CODICE CONCORSO 2021POR011
AI FINI DELLA PUBBLICAZIONE

FRANCESCO ROMEO
Curriculum Vitae

Part I – General Information

Full Name	Francesco Romeo
Citizenship	Italian
Spoken Languages	Italian, English

Part II – Education

Type	Year	Institution	Notes
Post-graduate studies	2004	Società Italiana Caos e Complessità	International School. Topics in nonlinear dynamics: discrete dynamical systems and applications
PhD	1999	Sapienza University of Rome	Dottorato di Ricerca in Ingegneria delle Strutture. Title: A Wavelet based approach for structural-system parametric identification
Post-graduate studies	1998	The Johns Hopkins University, Baltimore, MD	Master of Science in Engineering
Post-graduate studies	1996	Sapienza University of Rome	Corso di perfezionamento in Metodi Matematici per l’Analisi il Controllo e l’Ottimizzazione dei Sistemi
University graduation	1994	Sapienza University of Rome	Laurea in Ingegneria Civile (110/110) Title: Modellazione spazio-temporale di vento turbolento: applicazioni ad analisi strutturali

Part III – Academic Appointments

Start	End	Institution	Position
2007	present	Sapienza University of Rome	Associate Professor (Professore Associato ICAR/08)
07.2014	09.2014	Massachusetts Institute of Technology	Visiting Professor Dept. of Mechanical Engineering
02.2014	03.2014	Technion - IIT	Visiting Professor Faculty of Mechanical Engineering

07.2012	09.2012	University of Illinois at Urbana Champaign	Visiting Professor Dept. of Mech. Sciences and Engineering
04.2007	05.2007	University of Aberdeen	Visiting Professor Dept. of Engineering
2001	2007	Sapienza University of Rome	Assistant Professor (Ricercatore ICAR/08)
1999	2001	University of L'Aquila	Research Associate (Assegnista di Ricerca)

Part IV – Teaching and mentoring experience

IV.a Courses (undergraduate and master level)

Year	Institution	Lecture/Course
2017-present	Sapienza Università di Roma Facoltà di Architettura	Scienza delle Costruzioni (8 CFU)
2014-present	Sapienza Università di Roma Facoltà di Architettura	Modelli per l'Architettura Strutturale (6 CFU)*
2013-present	Sapienza Università di Roma Facoltà di Architettura	Mechanical Models and Prototypes (6 CFU)**
2011-16	Sapienza Università di Roma Facoltà di Architettura	Meccanica delle Strutture (8 CFU)
2007-10	Sapienza Università di Roma Facoltà di Architettura	Laboratorio di Analisi Strutturale (6 CFU)
2001-10	Sapienza Università di Roma Facoltà di Architettura	Statica e Teoria delle Strutture (8 CFU)
2001	Sapienza Università di Roma Facoltà di Architettura	Scienza delle Costruzioni I (6 CFU)
2000	Chieti University "G. D'Annunzio" Facoltà di Architettura	Scienza delle Costruzioni (a contratto)

* In this course we deal with the principles of structural mechanics that govern structural elements of architectural interest. The theoretical lessons are accompanied by the illustration and critical analysis of paradigmatic works of structural architecture. Through extensive digital simulations in Rhinoceros environment, the relationship between morphology and structural behavior is critically analyzed (Karamba 3D parametric FEM program). The topics addressed are: i) introduction to parametric design; ii) parameterization of curves and surfaces; iii) parametric curves and one-variable functions; iv) line-beam transformations: frame structural system assembly and structural analysis; v) points and curves attractors; vi) mesh-shell transformations: slab and plate system assembly and structural analysis.

**In this course the Product & Service Design Master's students address the mechanical aspects of the objects affecting their shape, production and function. The mechanical performance of physical objects can represent a feature useful to define their morphology. Based on a heuristic approach, the course aims to analyze the principles that govern the mechanical behavior of elementary surface structures, as paradigms of efficient resisting mechanisms. Such knowledge can be profitably integrated into the digital process of morphogenesis and realization of design products. Geometric simulations are carried out through digital and small-scale prototype modeling (3D printer Ultimaker 3).

IV.b Advanced Courses (PhD level)

Year	Institution	Lecture/Course
02.2021	Politecnico di Torino	PhD program in Architectural and Landscape Heritage – Excellence Course on "Challenges in the preservation of the architectural heritage of the 20th century: themes and experiences". Lectures on the Stadio Franchi (Florence) and Stadio Flaminio (Rome) structural conservation issues (2,5 hours)
05.2020	Sapienza Università di Roma	ADMSI – II Level Master in Analisi, Diagnostica e Monitoraggio di Strutture e Infrastrutture. Lectures on "Identificazione strutturale" and "Monitoraggio del patrimonio architettonico moderno" (12 hours)
03.2020 03.2021	Politecnico di Milano	PCGdIS – I and II Level Master in Progettazione Costruzione Gestione delle Infrastrutture Sportive, Lecture on "Piano di conservazione e valorizzazione dello Stadio Flaminio di Roma: metodologia, strumenti e contenuti" (3 hours)
07.2019	Sapienza Università di Roma	APESS 2019 – 12th Asia-Pacific-Euro Summer School on Smart Structures Technology. Lecture on "Introduction to System Identification and Modeling"; Competition coordinator (2 hours, 2-half day lab activity)
07.2019	Politecnico di Milano	Summer School Laboratorio Nervi. Lectures on "The structural architecture of P.L. Nervi" and "The conservation plan of the Stadio Flaminio: structural aspects" (4 hours)
10.2018	Politecnico di Milano	Summer School Laboratorio Nervi. Lectures on "Aspetti strutturali nel progetto di recupero" and "Problemi di conservazione delle strutture degli impianti sportivi" (3 hours, 1-day workshop)
05.2018	Politecnico di Torino	Ph.D Programme in Architecture and Landscape Heritage – Short Course on Ferrocement. Lecture on "Shape resisting design and conservation issues of the Stadio Flaminio ferrocement's canopy" (3 hours)
06.2010	CISM - International Centre for Mechanical Science	Advanced Course: Wave Propagation in Linear and Nonlinear Periodic Media: Analysis and Applications. Course coordinator with M. Ruzzene and lectures on "Map-based approaches for periodic structures" (4,5 hours)

IV.c Mentoring

Supervision of Laurea (n° 22) and Master (n° 48) theses on the following topics:

- Structural and geometric analysis of iconic works of Pier Luigi Nervi (NerViLab: Nervi Virtual Lab) (15)
- Parametric structural design (18)
- Architectural heritage structural analysis (7)
- Structural paper tube experimental characterization and applications (4)
- Dynamic structural identification (4)

Supervision of International Thesis Scholarships

11.2012 – 12.2012	Maurizio Giodice, KADK Copenaghen, Department CITA (Centre of Information Technology and Architecture). Tutor: prof. Martin Tamke
03.2019 – 05.2019	Debora Chiarello, The University of Sydney, Faculty of Engineering & Information Technologies. Tutor: prof. Gianluca Ranzi

Supervision of PostDoc

11.2020 – present	Maurizio Giodice, "L'uso del BIM per la valutazione multidisciplinare delle prestazioni sismiche di edifici". Assegno di ricerca AR-072020
04.2018 – 03.2020	Maurizio Giodice, "Geometric and structural parametric digital modeling of the Flaminio Stadium". Assegno di ricerca AR-062017
08.2018 – 07.2019	Paolo Di Re, "Analisi e modellazione strutturale dello Stadio Flaminio di Roma". Assegno di ricerca AR-032018
12.2020 – 05.2021	Armando Zagaroli, "Influenza del degrado nell'analisi dinamica di strutture in cemento armato del patrimonio architettonico moderno", 6 mesi. Borsa di studio BSR-06/2020
07.2019 – 09.2019	Fabiana Re, "Studio energetico-ambientale e caratterizzazione impiantistico-funzionale per lo sviluppo del piano di conservazione dello Stadio Flaminio di Roma", 3 mesi. Borsa di studio BSR-04/2019
11.2018 – 01.2019	Giulia Dinallo, "Caratterizzazione dei materiali cementizi e per la valutazione dello stato conservativo dello Stadio Flaminio di Roma", 2 mesi. Borsa di studio BSR-04/2018
11.2018 – 01.2019	Rossella Leone, "Studi e indagini sulle morfologie del degrado dei materiali cementizi dello Stadio Flaminio di Roma", 2 mesi. Borsa di studio BSR-05/2018
06.2018 – 11.2018	Silvia Negroni, "Ricerche d'archivio, ridisegno e modellazione digitale architettonica e strutturale dello Stadio Flaminio di Roma", 6 mesi. Borsa di studio BSR-03/2018

Supervision of PhD thesis:

02.2018	Sandra Chiacchiari Structural vibration energy harvesting via bistable nonlinear attachments
09.2017	Maurizio Giodice Modellazione parametrica e comportamento meccanico di superfici adattive in architettura: analisi e sperimentazione
06.2015	Egidio Lofrano Analisi dinamica diretta e inversa di strutture danneggiate a parametri incerti

Part V - Society memberships, Awards and Honors

Year	Title
2020 – present	ICOMOS (International Council of Monuments and Sites) - member
2019 – present	DO.CO.MO.MO Italia & International - member
2019	BIM&DIGITAL Awards - Capogruppo del progetto HBIM per il piano di conservazione dello Stadio Flaminio di Roma. First Prize: Interventi di restauro e valorizzazione del patrimonio.
2014 – present	ASME (The American Society of Mechanical Engineers) - member
2014 – present	International Olympic Committee - Musee Olympique Lausanne (permanent exhibition) Stereolithography Model of the Palazzetto dello Sport by Pier Luigi Nervi (NerViLab)
2013	Italian qualification to Full Professorship (Abilitazione Scientifica Nazionale: Professore di Prima Fascia nel settore 08/B2 Scienza delle Costruzioni, Tornata 2013) – Validity 26.01.2015/26.01.2024
2013 – present	IASS (International Association of Shell and Spatial Structures) - member
2001 – present	EUROMECH (European Mechanical Council) - member
2001 – present	AIMETA (Italian Association of Theoretical and Applied Mechanics) - member
1998	INSEAN (Istituto Nazionale per Studi ed Esperienze di Architettura Navale) - scholarship

Part VI - Funding Information [grants as PI-principal investigator or I-investigator]

VI.a Grants as PI-principal investigator

Year	Title	Program	Role	Grant value
2020	ROMA CAPITALE Dipartimento Sport e Politiche Giovanili. Convenzione di ricerca	Studio di adeguatezza sismica e monitoraggio strutturale dinamico del Palazzetto dello Sport di Roma	PI	44.530 €
2020	ANAS - Convenzione di ricerca	Definizione di una metodologia per applicazioni speditive di monitoraggio strutturale dinamico	PI	20.000 €
2019	MAECI - Mobility Project Italia – Polonia, settore spazio PO19MO15	Energy harvesting from multistable shells vibrations: theoretical modeling and experimental validation	PI	Funded mobility
2018	Sapienza Università di Roma "Ateneo – Progetti Medi"	Design strutturale: indagine teorica e sperimentale su morfologie, tecnologie e materiali.	PI	14.000 €
2017	GETTY FOUNDATION "Keeping It Modern 2017"	The Flaminio Stadium by Pier Luigi and Antonio Nervi in Rome: an interdisciplinary conservation plan	PI	161.000 €
2016	Sapienza Università di Roma "Ateneo – Progetti Medi"	Innovative integrated approaches for damage identification in building	PI	11.000 €
2016	Sapienza Università di Roma "Finanziamento Convegni, Seminari, Workshop"	EURODYN 2017, X International Conference on Structural Dynamics	PI	4.000 €
2011	Sapienza Università di Roma "FARI 2012"	Morphing structures for sustainable adaptive architecture applications	PI	6.700 €
2009	PLN Research and Knowledge Management Project – Stereolithography models	NerViLab: virtual lab for structural and geometric analysis of Pier Luigi Nervi's architectures	PI	81.000 €
2008	Sapienza Università di Roma "Progetti Giovani Ricercatori"	Dynamic response of nonlinear periodic structures	PI	3.000 €
2001	Università dell'Aquila "Progetti Giovani Ricercatori"	Linear and nonlinear dynamics of periodic structures	PI	1.500 €

VI.b Grants as I-investigator

Year	Title	Program
2019	Sapienza Università di Roma "Ateneo – Progetti Medi" PI: S. Paris	Eco-design e prodotti industriali: forma, struttura e tecnologia per il progetto degli artefatti. Una sperimentazione su materiali compositi.
2018	DTC LAZIO - Centro di eccellenza del Distretto tecnologico per i beni e le attività culturali del Lazio. PI: L. Caravaggi	Tecnologie per il miglioramento della Sicurezza e la rIcostruzione dei centri Storici in area sisMIca (SISMI), WP8
2018	DESDEMONA – EU Research Project PI: V. Gattulli	DEtection of Steel Defects by Enhanced MONitoring and Automated procedure for self-inspection and maintenance

2017	Sapienza Università di Roma “Ateneo – Progetti Grandi” PI: A. Paolone	Integrated Modeling and Performance Analysis for Civil structures driven by emerging survey and monitoring Technologies
2015	Sapienza Università di Roma “Ateneo - Progetti Grandi” PI: D. Capecchi	Identification techniques for the assessment of complex structures and materials
2015	MIUR national research project “FY 2015-18 PRIN GRANT”. PI: F. Vestroni	Identification and diagnostics in complex structural systems
2015	EU (ESF) e National Greek Operational Programme (ELL). PI: I. Georgiou	Intrinsic Multi-Scale Pulse-Based Damage Diagnosis in Complex Structures with Applications to Integrity Monitoring of Machinery and Structures in Marine and Aero Engineering
2013	Sapienza Università di Roma “Progetti AWARD”. PI: G. Rega	Modelling and nonlinear dynamics-based design of systems and structures from macro- to nano-mechanics
2010	EU FP7-245479. PI: T. Sadowski	CEMCAST Transfer of Knowledge project
2009	MIUR PRIN GRANT 2009-11 PI: F. Vestroni	Dynamic response of linear and nonlinear structures: modelling, experiments and identification
2006	ROYAL SOCIETY OF LONDON International Joint Project PI: E. Pavloskaia, S. Lenci	Energy extraction from sea waves by exploiting nonlinear dynamics phenomena
2004	BRITISH COUNCIL Young Researchers Project PI: E. Pavloskaia, S. Lenci	Application of nonlinear dynamics and control to energy extraction from sea waves
2003	MURST 2003-05 National Research Project PI: F. Vestroni	Comportamento dinamico delle strutture: analisi, sperimentazione e controllo
2003	MIUR PRIN GRANT 2003-04 PI: F. Vestroni	Dynamic behaviour of structures: analysis, experiments and control
2002	Sapienza Università di Roma “Progetto di Ateneo”. PI: G. Rega	Dinamica nonlineare, caos e controllo in applicazioni strutturali e meccaniche
2002	Sapienza Università di Roma “Progetto di Facoltà”. PI: G. Rega	Dinamica nonlineare di strutture spazialmente periodiche
2001	MURST 2001-03 National Research Project PI: F. Vestroni	Comportamento dinamico delle strutture: analisi e sperimentazione
2001	Servizio Sismico Nazionale e DISAT Università dell’Aquila. PI: G. Beolchini	Definizione di un indice di vulnerabilità urbana
2000	Soprintendenza per i B.A.A.A.S. per l’Abruzzo and DISAT Università dell’Aquila. PI: F. Vestroni	Analisi numerico-sperimentale del comportamento dinamico della Basilica S.M. di Collemaggio
1998	TAISEI Corporation PI: R. Ghanem	Reliability of civil infrastructure systems: risk reduction using advanced sensor technology

Part VII – Service and management activities

VII.a Sapienza University of Rome - Department of Structural and Geotechnical Engineering (DISG) administrative services

Year Description

2016/…	DISG Architecture Branch Manager (Coordinatore della Sezione Architettura del DISG)
2016/…	Adjunct member of Restricted Department Committee (Giunta DISG)
2002/06	Member of Restricted Department Committee (Giunta DISG)
2002/15	Responsible for IT and network manager of DISG Architecture Branch

VII.b Sapienza University of Rome - Faculty of Architecture administrative services

Year	Description
2020/…	Member of the SIDA Management Committee (Centro Sperimentazione e Innovazione Didattica della facoltà di Architettura)
2020/…	Member of the Department Research Coordination Committee (Commissione Coordinamento Ricerche Dipartimentali)
2016/…	Member of the Faculty Didactic and Scientific Activity Monitoring Committee (Comitato di Monitoraggio di Facoltà)
2012/…	Member of the Coordination Committee of Master of Science in Product and Service Design
2005/10	Member of the Coordination Committee of the "Tecnica dell'Architettura e della Costruzione" degree course

VII.c Scientific/Publishing services

Year	Description
2013/…	Member of PhD School (Collegio del Dottorato) in Structural and Geotechnical Engineering, Sapienza University of Rome
2019/…	Member of the Scientific Committee of the II Level Master "ADMSI - Analisi, Diagnostica e Monitoraggio di Strutture e Infrastrutture", Sapienza University of Rome
2020	Member of the Scientific Committee of ICoEV2020 – International Conference on Engineering Vibration, Aberdeen
2020	Member of University of Genova PhD Examination Committee (Civil, Chemical and Environmental Engineering)
2020/21	Mini-Symposium organizer: "Wave Propagation in Mechanical Systems and Nonlinear Metamaterials" with Y. Starosvetsky, M. Lepidi – ENOC 2020, Tenth European Nonlinear Dynamics Conference, Lyon
2020	Member of the Scientific Committee of the Exhibition "100 di Scuola di Architettura alla Sapienza di Roma" – Sapienza Facoltà di Architettura
2019	Member of the Scientific Committee of VII Conference on Nonlinear Vibrations, Localization and Energy Transfer, Marseille
2018	Organizing Committee for AIMETA 2019
2015/17	Member of the Scientific Committee of the II Level Master "EuroProject: Modellazione, analisi e progettazione strutturale avanzata secondo gli eurocodici", Sapienza University of Rome
2014/19	Mini-Symposium organizer: "Multi-Physics Dynamics-Control & Diagnostics-Prognostics of Structures and Devices" with I. Georgiou - ASME IMECE 2014-19, International Mechanical Engineering Congress and Exposition, USA
2017	Member of Politecnico di Torino PhD Examination Committee Architectural and Landscape Heritage
2017	Co-Chair of EURODYN 2017, X International Conference on Structural Dynamics, Rome
2017	Editor of "Proceedings of the X International Conference on Structural Dynamics", Procedia Engineering, vol. 199, ISSN: 1877-7058 (with V. Gattulli, F. Vestroni)
2017	Mini-Symposium organizer: "Wave Propagation in Mechanical Systems" with M. Ruzzene, Y. Starosvetsky - ENOC 2017, Ninth European Nonlinear Dynamics Conference, Budapest

2015/…	Associate Editor of Proceedings of the Institution of Mechanical Engineers, Part C: Journal of Mechanical Engineering Science (SAGE, IF=1.386)
2016	Member of the Scientific Committee of VI Conference on Nonlinear Vibrations, Localization and Energy Transfer, Liege
2015	Member of University of L'Aquila PhD Examination Committee (Civil and Territory Engineering)
2015	Mini-Symposium organizer: "System Identification, Damage Detection, and Diagnostics", with W. Zhu – ASME IDETC/CIE 2015, Boston
2015	Mini-Symposium organizer: "Structural identification and monitoring for smart city infrastructures", with V. Gattulli, I. Georgiou – SHMII 2015, 7th International Conference on Structural Health Monitoring of Intelligent Infrastructure, Turin
2014	Mini-Symposium organizer: "Wave Propagation in Mechanical Systems" with M. Ruzzene, Y. Starosvetsky – ENOC 2014, Eight European Nonlinear Dynamics Conference, Wien
2013	Member of the Scientific Committee of the School Contest "Pier Luigi Nervi: costruire correttamente" issued by Ministry of Education, University and Research
2012	Editor of "Wave Propagation in Linear and Nonlinear Periodic Media: Analysis and Applications", Springer Wien New York, ISBN 978-3-7091-1308-0 (with M. Ruzzene)
2011	Organizing Committee of ENOC 2011, Seventh European Nonlinear Dynamics Conference, Rome
2011	Editor of "Proceedings of the 7th European Nonlinear Dynamics Conference" ENOC 2011, ISBN: 978-88-906234-2-4, DOI: 10.3267/ENOC 2011 (with D. Bernardini, G. Rega)
2010	Member of the Scientific Committee of the International Exhibition "Pier Luigi Nervi. Architecture as challenge" (Bruxelles 2010, Venice 2010, Rome 2011, Turin 2011, Salerno 2012, Mantua 2012, Copenhagen 2012, Lausanne 2013, Zurich 2013, Florence 2020)
2010	Organizer of CISM Advanced Course: "Wave Propagation in Linear and Nonlinear Periodic Media: Analysis and Applications" (with M. Ruzzene), Udine
2009	Organizing Committee of EUROMECH Colloquium 503, Nonlinear Normal Modes, Dimension Reduction and Localization in Vibrating Systems, Rome
2003	Organizing Committee of IUTAM Symposium on Chaotic Dynamics and Control of Systems, Rome
2002/…	Reviewer of International Journals: AIAA Journal, Applied Mathematical Modelling, International Journal of Nonlinear Mechanics, Journal of Applied Mechanics, Journal of Engineering Mechanics, Journal of Sound and Vibration, Journal of Vibration and Acoustics, Journal of Vibration and Control, Mathematical Problems in Engineering, Meccanica, Mechanical Systems and Signal Processing, Nonlinear Dynamics

Part VIII – Research Activities

Brief description of main research areas, people involved and achievements. References shall be referred to the list in Part XI.

VIII.a Nonlinear dynamic regimes for energy harvesting

Main collaborations: M. Brunetti (Sapienza), S. Chiacchiari (Sapienza), A. Vakakis (University of Illinois at Urbana Champaign), J. Warminski (Lublin University of Technology)

Keywords	Brief Description
Vibration-based energy harvesting	Vibrations are pervasive in the environment, so kinetic energy generators are an attractive solution for powering autonomous, small-scale systems. Based on the preceding studies on vibration mitigation via bistable devices (VIII.b), the interest turned to investigate vibration-based electromagnetic bistable energy harvesting systems coupled to directly excited, weakly damped linear primary systems. Three different mechanisms are exploited to attain a fast energy capture and harvesting: periodic cross-well oscillations, a regime of aperiodic cross- and in-well oscillations, and fully in-well oscillations. An ideal energy harvesting capability greater than 400 mJ per applied impulse was computed for high-energy inputs and for optimal impulse periods [9]. To validate the numerical predictions, an extensive experimental campaign was carried out at the Linear and Nonlinear Dynamics and Vibrations Laboratory at UIUC. The mechanical coupling between the hosting system and the nonlinear attachment was realized by means of a steel beam axially compressed until the post-buckling configuration was reached, in order to provide a negative linear stiffness component to the coupling. Under the single-impulse scenario, snap-through instability of the buckled beam, with high-frequency transient resonance captures, enabled efficient energy harvesting during the first cycles of motion: the nonlinear device was found to be able to absorb and harvest up to 80 mJ of energy, with average power of 40 mW for the excitation level range considered (0.05–0.45) m/s. Under periodically repeated pulses, up to 20 mW of mean power was experimentally extracted [5]. These encouraging results lead us to receive the MAECI Mobility Project grant in 2019. Since then, on-going theoretical and experimental research activity is carried out with the Lublin University in Poland. It focuses on the nonlinear dynamic response of multistable shells [7] to be exploited for the design of efficient energy harvesting systems.
Bistability	
Experimental nonlinear dynamics	
Multistable shells dynamics	

VIII.b Nonlinear dynamic regimes for vibration mitigation

Main collaborations: L. Bergman (University of Illinois at Urbana Champaign), G. Habib (Budapest University of Technology and Economics), L. Manevitch (Institute of Chemical Physics, Moscow), A. Vakakis (University of Illinois at Urbana Champaign)

Keywords	Brief Description
Vibration mitigation	Linear vibration absorbers represent a well-established benchmark for mitigation of resonances, widely used in engineering practice with excellent performance. In this realm, tuned mass damper (TMD) devices have been extensively studied. As known, a single vibration absorber can be used to damp only one resonance of the

Nonlinear vibration absorber	primary structure. To overcome the TMD narrow frequency band capabilities while relying on passive mitigation strategies based on a single device, many researchers studied the effect of additional nonlinearities in the absorber, aiming at letting the absorber resonate at more than one frequency. Along this research line, together with Vakakis' research group at UIUC, we have proposed a lightweight, bistable, nonlinear absorber [13,17,18]. Several analytical and numerical approaches were needed to tackle the involved nonlinear dynamics resulting from an impulsive excitation applied to the hosting structure, such as complexification-averaging asymptotic analysis, slow invariant manifolds, frequency-energy plots and Poincaré maps. The absorption performance assessment of the proposed device, conducted by comparing it with purely cubic (NES) and purely linear (TMD) devices, has shown that its absorption capabilities are superior to those of the NES while dramatically broadening the operational frequency range [2,10]. Numerous on-going experimental validations by different research groups is confirming the effectiveness and feasibility of our absorber proposal.
Bistability	
Targeted energy transfer	

VIII.c Dynamic structural and damage identification

Main collaboration: R. Ghanem (University of Southern California), E. Lofrano (Sapienza), A. Paolone (Sapienza)

Keywords	Brief Description
Dynamic identification	The derivation of a relevant system description based on the knowledge of input/output data, termed system identification, belongs to the so-called inverse problems. Whenever the system is represented by a mechanical or civil structure such a problem is commonly referred to as structural identification and the input/output roles are played, respectively, by dynamic loadings and corresponding structural responses; the latter are usually expressed in terms of displacements, velocities and accelerations. The main purpose of our initial research activity on structural identification was to develop a procedure flexible enough to allow to address both linear and nonlinear dynamical systems; aiming at this goal, a mathematical framework based on the theory of wavelets was proposed. Moving from the discretization of ordinary and partial differential equations based on the Wavelet-Galerkin approach, inverse algebraic problems in the wavelet basis subspace were derived. Linear time-invariant, and time-varying systems were considered, including the analysis of the technique robustness in presence of noisy data. We have shown that localization in space (time) of the so-called scaling functions permits the identification of the parameters' evolution [34]. The procedure was then extended to identify nonlinear systems for which a dual goal was pursued: nonlinearity characterization (i.e. detection, type and location) and parametric identification [32, 35]. Our studies have contributed to pave the ground to the wide field of wavelet based structural identification (more than 22000 papers since 2002, source Google Scholar), as testified by the almost 300 citations (source Scopus) received so far by our papers.
Wavelet-Galerkin method	
Identification of time-varying systems	

Identification of nonlinear systems	More recently, our activity was aimed at structural health monitoring activities [1] as well as dynamic identification of damages in structural systems [3]. For the latter, our studies propose a new damage identification technique based on the combined use of the decomposition part of the Hilbert-Huang Transform (HHT), known as Empirical Mode Decomposition (EMD), and the experimental modal analysis approach. Therefore the method aims at merging the time-frequency content of the structural response signals, provided by the signal processing phase, with the dynamic features of the damaged structure provided by the modal perspective. By doing so, a response based and data-driven pseudo-modal approach for structural damage identification is introduced. Through the Orthogonal Empirical Mode Decomposition, we derive multi-frequency sub-signals directly from non-stationary acceleration response. These signals form a complete time-domain basis providing with empirical mode shapes enhancing the modal damage identification capabilities. A damage index comparing undamaged and damaged pseudo-modes has been applied to detect a localised damage in numerical and experimental tests on two structural models, namely a 4-degrees-of-freedom system and a two-hinged parabolic arch.
Damage identification via pseudo-modal approach	

VIII.d Energy transfer in archetypal coupled mechanical systems

Main collaborations: L. Manevitch (Institute of Chemical Physics, Moscow), V. Smirnov (Institute of Chemical Physics, Moscow)

Keywords	Brief Description
Non-stationary dynamics	This research activity, stemming as a generalization of the topics addressed in VIII.b, the energy transfer mechanisms ensuing from the strongly nonlinear dynamic regimes characterizing systems of coupled pendula are investigated. Here efforts were made to fill the gap in understanding the non-stationary Hamiltonian dynamics of paradigmatic coupled systems having significant applications in numerous fields of physics and engineering. While common knowledge of these models is predominantly based on the stationary theory and quasi-linear approach to non-stationary dynamics, we considered strongly nonlinear regimes by relying on the Limiting Phase Trajectory concept introduced by Manevitch in 2007. From asymptotic expansions close to resonance conditions, states of either intense energy exchange or energy localization were identified without any restriction on the amplitude of oscillations. The cases of two and of a finite chain of weakly coupled pendula were considered [14,11]. Furthermore, the pendulum undergoing harmonic and parametric forcing is addressed [12,4]. Adopting a unified mathematical framework in which the quasi-linear approximation is removed, we shed light on non-stationary energy transition conditions that can occur in a variety of applications where the model of weakly coupled pendula plays a basic role.
Pendulum systems	
Energy localization	
Chaotic transitions	

VIII.e Nonlinear dynamics in multi-physics systems

Main collaborations: I. Georgiou (Technical University of Athens), V. Settimi (Sapienza)

Keywords	Brief Description
Electromechanical systems	As it is known, electromechanical systems are characterized by the interaction among inertial, electric, and magnetic circuits, and they are nowadays widely used for devices that monitor and control machine and structural systems. Depending on the specific engineering application, electromechanical devices range from macro to micro and nano scales. The system investigated consists of a linear oscillator nonlinearly coupled through an electromagnet to a linear electric circuit. The peculiar source of nonlinearity is linked to the inductance representing a nonlinear inertial coupling. By exciting the system via harmonic voltage, several multistable regions, with low amplitude solutions coexisting with oscillations of very high amplitude, able to induce the so-called pull-in phenomenon, were observed. Extensive numerical investigations involving frequency-response curves, bifurcation diagrams, phase portraits and stability charts were combined to provide an exhaustive description of the involved peculiar nonlinear phenomena experienced by the system. Moreover, chaotic regimes were analyzed by means of Lyapunov characteristic exponents [6]. Aiming also at predicting and describing the observed behaviour, we have proposed a purely analytical asymptotic approach [8]. This analysis turned out to be effective due to the persistence of the unstable region also for rather low values of the nonlinear coupling. In developing the asymptotic procedure, a high order Multiple Scale Method was applied to the model in agreement with our previous alternative analytical approach, based on a slow-fast time decomposition, in which high orders were needed to catch the dynamical phenomena [16].
Nonlinear inertial coupling	
Multiple scale method	
Stability analysis	

VIII.f Dynamics of linear and nonlinear periodic structures

Main collaborations: A. Luongo (University of L'Aquila), G. Rega (Sapienza), A. Paolone (Sapienza)

Keywords	Brief Description
Wave propagation	Periodic structural configurations are ubiquitous: many heterogeneous structures and materials, both man-made and naturally occurring, feature geometry, micro-structural and/or materials properties that vary periodically in space. Periodic trusses, periodically stiffened plates, shells and beam-like assemblies can be found for example in many civil, aerospace, mechanical and ship constructions. Besides their structural strength and light-weight properties, the periodicity can be exploited to attenuate, isolate and localize vibrations. So, periodic assemblies have the unique ability to impede the propagation of elastic waves over specified frequency bands, within which strong attenuation of vibration and radiated noise can be achieved. In our studies the dynamic behaviour of continuous and discrete models of both linear and nonlinear periodic mechanical systems are dealt with by means of maps
Transfer matrix	

Nonlinear maps	[31,30,29,25]. The latter allow to reduce the dimension of the problem to the number of degrees of freedom of the single element, providing a universal representation of the propagation properties in the map invariant space. At first, linear problems consisting of general multi-coupled periodic systems were investigated and they were handled with linear maps, namely the transfer matrices of single units. Afterwards, perturbation methods were applied to the transfer matrix of chains of continuous nonlinear beams [27] while nonlinear maps were considered to address chains of non-linear oscillators [28,24,15]. The nonlinear propagation regions of chains of oscillators with cubic nonlinearity exhibiting periodic solutions were used to identify the regions of existence of discrete breathers, i.e. time periodic and spatially localized solutions, and to guide their analysis. Our seminal research activity contributed to define the theoretical basis for the wide range of recent applications regarding structural metamaterials.
Localized solutions	

Part IX – Summary of Scientific Achievements

Product type	Number	Database	Start	End
Journal papers	34	Scopus	2000	2021
Conference Papers	14	Scopus	1998	2020
Books Chapters [Sci.]	2	Scopus	2012	2020

Total Impact factor*	65.24
Average Impact Factor*	1.92
Total Citations	893
Average Citations	17.86
Average Citations per Journal paper	26.26
Hirsch (H) index	15
Normalized H index**	15/20=0.75

* The total and average impact factors (IF) have been computed extracting the IF of each article at the year of publication (InCites Journal Citation Reports – Clarivate Analytics).
**H index divided by the academic seniority (H index self-citations excluded = 15).

Part X – Selected Publications (max. 15)

1. Habib G., Romeo F., 2020. Tracking modal interactions in nonlinear energy sink dynamics via high-dimensional invariant manifold, *Nonlinear Dynamics*, DOI: https://doi.org/10.1007/s11071-020-05937-4, not cited. IF at pub. year=4.87. Current IF=4.87.
2. Lofrano, E., Romeo, F., Paolone, A., 2019. A pseudo-modal structural damage index based on orthogonal empirical mode decomposition, *Proceedings of the Institution of Mechanical Engineers, Part C: Journal of Mechanical Engineering Science*, 233 (23-24), pp. 7545-7564, doi: 10.1177/0954406219885972, cited 3 times. IF at pub. year=1.39, Current IF=1.39.
3. Kovaleva, M., Manevitch, L.I., Romeo, F., 2019. Stationary and non-stationary oscillatory dynamics of the parametric pendulum, *Communications in Nonlinear Science and Numerical Simulation*, 76, pp. 1-11, doi: 10.1016/j.cnsns.2019.02.016, cited 1 time. IF at pub. year=4.12, Current IF=4.12.
4. Chiacchiari S., Romeo F., McFarland D.M., Bergman L.A., Vakakis A.F., 2019. Vibration energy harvesting from impulsive excitations via a bistable nonlinear attachment-Experimental study, *Mechanical Systems and Signal Processing*, 125, pp. 185-201, doi: 10.1016/j.ymssp.2018.06.058, cited 11 times. IF at pub. year=6.47, Current IF=6.47.

5. Settimi V., Romeo F., 2018. Dynamic regimes of a nonlinearly coupled electromechanical system, *Int. Journal of Nonlinear Mechanics*, 103, pp. 68-81, doi: 10.1016/j.ijnonlinmec.2018.04.008, cited 2 times. IF at pub. year=2.23, Current IF=2.31.
6. Brunetti M., Kloda L., Romeo F., Warminski J., 2018. Multistable cantilever shells: Analytical prediction, numerical simulation and experimental validation, *Composites Science and Technology*, 165, pp. 397-410, doi: 10.1016/j.compscitech.2018.06.021, cited 3 times. IF at pub. year=6.31, Current IF=7.09.
7. Settimi V., Romeo F., 2018. High order asymptotic dynamics of a nonlinearly coupled electromechanical system, *Journal of Sound and Vibration*, 432, pp. 470-483, doi: 10.1016/j.jsv.2018.06.046, not cited. IF at pub. year=2.62. Current IF=3.43.
8. Chiacchiari S., Romeo F., McFarland D.M., Bergman L.A., Vakakis A.F., 2017. Vibration energy harvesting from impulsive excitations via a bistable nonlinear attachment, *Int. Journal of Nonlinear Mechanics*, 94, pp. 84-97, doi: 10.1016/j.ijnonlinmec.2017.04.007, cited 25 times. IF at pub. year=2.16, Current IF=2.31.
9. Habib G., Romeo F., 2017. The tuned bistable nonlinear energy sink, *Nonlinear Dynamics*, 89 (1), pp. 179-196, doi: 10.1007/s11071-017-3444-y, cited 32 times. IF at pub. year=4.34, Current IF=4.87.
10. Romeo F., Manevitch L.I., Bergman L.A., Vakakis A., 2015. Transient and chaotic low-energy transfers in a system with bistable nonlinearity, *Chaos*, 25(5):053109, doi: 10.1063/1.4921193, cited 19 times. IF at pub. year =2.05, Current IF=2.83.
11. Manevitch L.I., Romeo F., 2015. Non-stationary resonance dynamics of weakly coupled pendula, *EPL Europhysics Letters*, vol. 112, 30005, doi: 10.1209/0295-5075/112/30005, cited 12 times. IF at pub. year=1.96, Current IF=1.96.
12. Romeo F., Rega G., 2015. Periodic and localized solutions in chains of oscillators with softening or hardening cubic nonlinearity, *Meccanica*, 50 (3), pp. 721-730, doi: 10.1007/s11012-014-9977-y, cited 7 times. IF at pub. year=1.83, Current IF= 2.15.
13. Georgiou I. T., Romeo F., 2015. Multi-Physics Dynamics of a Mechanical Oscillator Coupled to an Electro- Magnetic Circuit, *Int. Journal of Nonlinear Mechanics*, 70, pp. 153-164, doi: 10.1016/j.ijnonlinmec.2014.08.007, cited 11 times. IF at pub. year=1.92, Current IF= 2.31.
14. Romeo F., Sigalov G., Bergman L., Vakakis A.I., 2015. Dynamics of a Linear Oscillator Coupled to a Bistable Light Attachment: Numerical Study, *Journal of Computational and Nonlinear Dynamics*, vol. 10, art. no.011007, doi: 10.1115/1.4027224, cited 45 times. IF at pub. year=1.22, Current IF= 1.66.
15. Vasta M., Romeo F., Paolone A., 2009. A discrete approach for a generalized Beck's column in parametric resonance, *Int. Journal of Solids and Structures*, vol. 46, pp. 3165-3172, doi:10.1016/j.ijsolstr.2009.04.011, cited 3 times. IF at pub. year=1.81, Current IF= 3.21.

Part XI – List of all papers published in Peer Reviewed International Journals

1. Di Re P., Lofrano E., Ciambella J., Romeo F., 2021. Structural analysis and health monitoring of twentieth-century cultural heritage: the Flaminio Stadium in Rome, *Smart Structures and Systems*, DOI: http://dx.doi.org/10.12989/sss.2021.27.2.285, not cited. Current IF=3.56.
2. Habib G., Romeo F., 2020. Tracking modal interactions in nonlinear energy sink dynamics via high-dimensional invariant manifold, *Nonlinear Dynamics*, DOI: https://doi.org/10.1007/s11071-020-05937-4, not cited. IF at pub. year=4.87, Current IF=4.87.
3. Lofrano, E., Romeo, F., Paolone, A., 2019. A pseudo-modal structural damage index based on orthogonal empirical mode decomposition, *Proceedings of the Institution of Mechanical Engineers, Part C: Journal of Mechanical Engineering Science*, 233 (23-24), pp. 7545-7564, doi: 10.1177/0954406219885972, cited 3 times. IF at pub. year=1.39, Current IF=1.39.
4. Kovaleva, M., Manevitch, L.I., Romeo, F., 2019. Stationary and non-stationary oscillatory dynamics of the parametric pendulum, *Communications in Nonlinear Science and Numerical Simulation*, 76, pp. 1-11, doi: 10.1016/j.cnsns.2019.02.016, cited 1 time. IF at pub. year=4.12, Current IF=4.12.
5. Chiacchiari S., Romeo F., McFarland D.M., Bergman L.A., Vakakis A.F., 2019. Vibration energy harvesting from impulsive excitations via a bistable nonlinear attachment-Experimental study, *Mechanical Systems and Signal Processing*, 125, pp. 185-201, doi: 10.1016/j.ymssp.2018.06.058, cited 11 times. IF at pub. year=6.47, Current IF=6.47.
6. Settimi V., Romeo F., 2018. Dynamic regimes of a nonlinearly coupled electromechanical system, *Int. Journal of Nonlinear Mechanics*, 103, pp. 68-81, doi: 10.1016/j.ijnonlinmec.2018.04.008, cited 2 times. IF at pub. year=2.23, Current IF=2.31.
7. Brunetti M., Kloda L., Romeo F., Warminski J., 2018. Multistable cantilever shells: Analytical prediction, numerical simulation and experimental validation, *Composites Science and Technology*, 165, pp. 397-410, doi: 10.1016/j.compscitech.2018.06.021, cited 3 times. IF at pub. year=6.31, Current IF=7.09.

8. Settimi V., Romeo F., 2018. High order asymptotic dynamics of a nonlinearly coupled electromechanical system, *Journal of Sound and Vibration*, 432, pp. 470-483, doi: 10.1016/j.jsv.2018.06.046, not cited. IF at pub. year=2.62, Current IF=3.43.
9. Chiacchiari S., Romeo F., McFarland D.M., Bergman L.A., Vakakis A.F., 2017. Vibration energy harvesting from impulsive excitations via a bistable nonlinear attachment, *Int. Journal of Nonlinear Mechanics*, 94, pp. 84-97, doi: 10.1016/j.ijnonlinmec.2017.04.007, cited 25 times. IF at pub. year=2.16, Current IF=2.31.
10. Habib G., Romeo F., 2017. The tuned bistable nonlinear energy sink, *Nonlinear Dynamics*, 89 (1), pp. 179-196, doi: 10.1007/s11071-017-3444-y, cited 32 times. IF at pub. year=4.34, Current IF=4.87.
11. Manevitch, L.I., Smirnov, V.V., Romeo, F., 2016. Stationary and non-stationary resonance dynamics of the finite chain of weakly coupled pendula, *Cybernetics and Physics*, 5(4), pp.130-135, cited 8 times. IF at pub. year=1.19, Current IF=1.19.
12. Manevitch, L.I., Smirnov, V.V., Romeo, F., 2016. Non-stationary resonance dynamics of the harmonically forced pendulum, *Cybernetics and Physics*, 5(3), pp.91-95, cited 8 times. IF at pub. year=1.19, Current IF=1.19.
13. Romeo F., Manevitch L.I., Bergman L.A., Vakakis A., 2015. Transient and chaotic low-energy transfers in a system with bistable nonlinearity, *Chaos*, 25(5):053109, doi: 10.1063/1.4921193, cited 19 times. IF at pub. year =2.05, Current IF=2.83.
14. Manevitch L.I., Romeo F., 2015. Non-stationary resonance dynamics of weakly coupled pendula, *EPL Europhysics Letters*, vol. 112, 30005, doi: 10.1209/0295-5075/112/30005, cited 12 times. IF at pub. year=1.96, Current IF=1.96.
15. Romeo F., Rega G., 2015. Periodic and localized solutions in chains of oscillators with softening or hardening cubic nonlinearity, *Meccanica*, 50 (3), pp. 721-730, doi: 10.1007/s11012-014-9977-y, cited 7 times. IF at pub. year=1.83, Current IF= 2.15.
16. Georgiou I. T., Romeo F., 2015. Multi-Physics Dynamics of a Mechanical Oscillator Coupled to an Electro- Magnetic Circuit, *Int. Journal of Nonlinear Mechanics*, 70, pp. 153-164, doi: 10.1016/j.ijnonlinmec.2014.08.007, cited 11 times. IF at pub. year=1.92, Current IF= 2.31.
17. Romeo F., Sigalov G., Bergman L.A., Vakakis A.I., 2015. Dynamics of a Linear Oscillator Coupled to a Bistable Light Attachment: Numerical Study, *Journal of Computational and Nonlinear Dynamics*, vol. 10, art. no.011007, doi: 10.1115/1.4027224, cited 45 times. IF at pub. year=1.22, Current IF= 1.66.
18. Manevitch, L.I., Sigalov, G., Romeo, F., Bergman, L.A., Vakakis, A., 2014. Dynamics of a linear oscillator coupled to a bistable light attachment: Analytical study, *Journal of Applied Mechanics, Transactions ASME*, 81 (4), art. no. 041011-1, doi: 10.1115/1.4025150, cited 57 times. IF at pub. year=1.37, Current IF= 2.67.
19. Horton, B., Lenci, S., Pavlovskaia, E., Romeo, F., Rega, G., Wiercigroch, M., 2013. Stability boundaries of period-1 rotation for a pendulum under combined vertical and horizontal excitation, *Journal of Applied Nonlinear Dynamics*, 2 (2), pp. 103-126, 10.5890/JAND.2013.04.00, cited 5 times. IF at pub. year=0.73, Current IF= 0.73.
20. Romeo, F., 2013. resenting nervi's work through scale models: The nervilab, *Journal of the International Association for Shell and Spatial Structures*, 54 (176-177), pp. 211-220, cited 1 time. IF at pub. year=0.63, Current IF= 0.63.
21. Vasta M., Romeo F., Paolone A., 2009. A discrete approach for a generalized Beck's column in parametric resonance, *Int. Journal of Solids and Structures*, vol. 46, pp. 3165-3172, doi:10.1016/j.ijsolstr.2009.04.011, cited 3 times. IF at pub. year=1.81, Current IF= 3.21.
22. Paolone, A., Romeo, F., Vasta, M., 2009. Parametric resonance of Hopf bifurcation in a generalized Beck's column, *Journal of Computational and Nonlinear Dynamics*, 4 (1), pp. 1-8, 10.1115/1.3007905, cited 1 time. IF at pub. year=0.56, Current IF= 1.66.
23. Romeo, F., Padoan, G., 2008. JTruss: A CAD-oriented educational open-source software for static analysis of truss-type structures, *Computer Applications in Engineering Education*, 16 (4), pp. 280-288, doi: 10.1002/cae.20150, cited 7 times. IF at pub. year=0.39, Current IF= 0.86.
24. Romeo, F., Rega, G., 2008. Propagation properties of bi-coupled nonlinear oscillatory chains: Analytical prediction and numerical validation, *International Journal of Bifurcation and Chaos*, 18 (7), pp. 1983-1998, doi: 10.1142/S021812740802149X, cited 4 times. IF at pub. year=0.87, Current IF= 2.47.
25. Romeo, F., Paolone, A., 2008. Wave propagation in three-coupled periodic structures, *Journal of Sound and Vibration*, 301 (3-5), pp. 635-648, doi: 10.1016/j.jsv.2006.10.017, cited 16 times. IF at pub. year=1.36, Current IF= 3.43.
26. Xu, X., Pavlovskaia, E., Wiercigroch, M., Romeo, F., Lenci, S., 2007. *ZAMM Zeitschrift fur Angewandte Mathematik und Mechanik*, 87 (2), pp. 172-186, doi: 10.1002/zamm.200610311, cited 61 times. IF at pub. year=0.55, Current IF= 1.1.
27. Luongo, A., Romeo, F., 2006, A transfer-matrix-perturbation approach to the dynamics of chains of nonlinear sliding beams, *Journal of Vibration and Acoustics, Transactions of the ASME*, 128 (2), pp. 190-196, 10.1115/1.2159034, cited 17 times. IF at pub. year=0.55, Current IF= 2.34.
28. Romeo, F., Rega, G., 2006. Wave propagation properties in oscillatory chains with cubic nonlinearities via nonlinear map approach, *Chaos Solitons and Fractals*, 27 (3), pp. 606-617, doi: 10.1016/j.chaos.2005.04.087, cited 22 times.

IF at pub. year=2.04, Current IF= 3.76.

29. Luongo, A., Romeo, F., 2005. Real wave vectors for dynamic analysis of periodic structures, *Journal of Sound and Vibration*, 279 (1-2), pp. 309-325, doi: 10.1016/j.jsv.2003.11.011, cited 35 times. IF at pub. year=0.9, Current IF= 3.43.
30. Romeo, F., Luongo, A., 2003. Vibration reduction in piecewise bi-coupled periodic structures, *Journal of Sound and Vibration*, 268 (3), pp. 601-615, doi: 10.1016/S0022-460X(03)00375-4,cited 45 times. IF at pub. year=0.72, Current IF= 3.43.
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33. Gattulli, V., Romeo, F., 2000. Integrated procedure for identification and control of MDOF structures, *Journal of Engineering Mechanics*, 126 (7), pp. 730-737, doi: 10.1061/(ASCE)0733-9399(2000)126:7(730), cited 29 times. IF at pub. year=0.69, Current IF= 2.0.
34. Ghanem, R., Romeo, F., 2000. Wavelet-based approach for the identification of linear time-varying dynamical systems, *Journal of Sound and Vibration*, 234 (4), pp. 555-576, doi: 10.1006/jsvi.1999.2752, cited 178 times. IF at pub. year=0.80, Current IF= 3.43.
35. Gattulli V., Romeo F., 1999. An adaptive mass damper for self-excited oscillations, Journal of Structural Control, 6(2), pp. 187-203, https://doi.org/10.1002/stc.4300060201, cited 2 times. IF not available.

Part XII – Seminars and National and International Conferences

XII.a Invited seminars

Date	Description
22.02.2019	*The Flaminio Stadium conservation plan: structural aspects* InnovaConcrete Rome Workshop, CNR, Rome, Italy
25.06.2018	*The Flaminio Stadium by Pier Luigi and Antonio Nervi in Rome: an interdisciplinary conservation plan.* KIM Conservation Planning Workshop, Getty Foundation, London, UK
14.09.2018	*Pier Luigi Nervi and Rome 1960 Olympic Games – part I* *The Flaminio Stadium by Pier Luigi and Antonio Nervi – part II* The Norvegian Institute in Rome, Moving Monuments Program, Rome, Italy
25.08.2014	*Transient Dynamics of a Bistable Nonlinear Energy Sink Coupled System* Massachusetts Institute of Technology, Cambridge, MA
10.02.2014	*Nonlinear Dynamics of a Linear Oscillator Coupled to a Bistable Light Attachment* Technion Israel Institute of Technology, Haifa, Israel
06.11.2012	*Le geometrie strutturali di Pier Luigi Nervi* Università degli Studi di Salerno
28.11.2011	*L'intensa semplicità dell'organismo strutturale dell'aula delle udienze pontificie* Accademia dei Lincei, Roma
11.12.2008	*Linear and nonlinear dynamics of periodic structures* Institute of Mechanics and Mechatronics, TU Wien, Austria
29.04.2008	*Using nonlinear dynamics phenomena for enhanced and sustainable energy production* Italian-Israeli Forum on Science and Technology, Tel-Aviv, Israel
04.04.2007	*Critical and Post-critical analysis of thin-walled beams with parametric forcing* University of Aberdeen, Department of Engineering, Aberdeen, Scotland
28.09.2005	*On the dynamics of linear and nonlinear periodic structures* Aerospace and Mechanical Engineering Dept., University of Southern California, Los Angeles, CA
18.07.2005	*L'uso delle wavelets nell'identificazione strutturale* DISAT, Università degli Studi di L'Aquila

24.02.2004	*Dynamics of periodic structures* University of Aberdeen, Department of Engineering, Aberdeen, Scotland
19.11.1998	*Applicazioni della teoria delle wavelets nella dinamica delle strutture* DISAT, Università degli Studi di L'Aquila
10.07.1998	*Una procedura per la caratterizzazione di sistemi dinamici tramite wavelets* DISG, Sapienza Università di Roma
23.09.1997	*Characterization of dynamical systems using wavelets* Civil Engineering Department, The Johns Hopkins University, Baltimore, MD

XII.b Contribution/participation to International Conferences

1. Paris S., Romeo F., 2020. Economic form in teaching design, between aesthetics, engineering and technologies. Some recent experiences in design studio, 14th Int. Conference on Design Principles & Practice, Brooklyn, USA, postponed.
2. Brunetti M., Romeo F., Mitura A., Warminski J., 2020. Nonlinear dynamics and 17eversible transitions of composite bistable shells, IcoEV 2020 – International Conference on Engineering Vibrations, Aberdeen, Scotland, postponed.
3. Mitura A., Warminski J., Brunetti M., Romeo F., 2020. Experimental dynamics of composite bistable cantilever shell, ENOC 2019 – 10th European Nonlinear Dynamics Conference, Lyon, France, postponed to 2021.
4. Romeo F., 2020. The structural significance in the conservation plan of the Stadio Flaminio by Pier Luigi and Antonio Nervi in Rome, 16th DOCOMOMO International Conference, Tokyo, Japan, postponed to 2021.
5. Habib G., Romeo F., 2019. Bistable nonlinear energy sink robustness analysis for multi-mode energy dissipation, XXIV Congresso AIMETA, Rome, Italy, September 15-19.
6. Brunetti M., Ippolito S., Romeo F., 2019. Bistable cantilever shells for vibration energy harvesting, XXIV Congresso AIMETA, Rome, Italy, September 15-19.
7. Habib G., Romeo F., 2019. Bistable nonlinear energy sink dynamics via high-dimensional invariant manifolds, 7th Int. Conference on Nonlinear Vibrations, Localization and Energy Transfer, Marseille, France, July 1-4.
8. Kovaleva M., Manevitch L.I. Romeo F., 2019. Strongly nonlinear dynamics of the parametric pendulum, NODYCON 2019 – First Int. Nonlinear Dynamics Conference, Rome, Italy, February 17-20.
9. Habib G., Romeo F., 2018. Comparative analysis of NES and TMD performance via high-dimensional invariant manifold, ENOLIDES 2018 – IUTAM Symposium on Exploiting Nonlinear Dynamics for Engineering Systems, Novi Sad, Serbia, July 15-19.
10. Settimi V., Romeo F., 2018. Dynamic regimes in nonlinearly coupled electromechanical system, ESMC 2018 – 10th European Solid Mechanics Conference, Bologna, Italy, June 2-6.
11. Giodice M., Romeo F., 2017. Origami textures for adaptive plate and shell structures. Kine[SiS]tem from Nature to Architectural Matter Int. Conference, Lisbon, Portugal, July 19-20.
12. Romeo F., Manevitch L.I., Kovaleva M., 2017. Stationary and non-stationary dynamics of the parametric pendulum, ENOC 2017 – 9th European Nonlinear Dynamics Conference, Budapest, Hungary, June 25-30.
13. Chiacchiari S., Romeo F., McFarland D.M., Bergman L.A., Vakakis A.F., 2017. Vibration-based harvesting via bistable system: experimental study, ENOC 2017 – 9th European Nonlinear Dynamics Conference, Budapest, Hungary, June 25-30.
14. Lofrano E., Paciacconi A., Paolone A., Romeo F., 2017. Experimental validation of a novel pseudo-modal approach for damage detection, EURODYN 2017 – Tenth International Conference on Structural Dynamics, Rome, Italy, September 10-13.
15. Romeo F., Smirnov V., Manevitch L.I., 2016. Energy exchange and localization in pendulum systems with arbitrary oscillations amplitude, Euromech Colloquium 580 – Strongly Nonlinear Dynamics and Acoustics of Granular Metamaterials, Grenoble, France, July 11-13.
16. Romeo F., Georgiou I., 2016. Nonlinear dynamics of an electro-mechanical system: numerical and experimental study, XXIV ICTAM – Int. Congress of Theoretical and Applied Mechanics, Montreal, Canada, August 21-26.
17. Romeo F., Georgiou I., Nonlinear dynamic interaction in a coupled electro-magneto-mechanical system: experimental study, IMAC-XXXIV Conference and Exposition on Structural Dynamics, Orlando, FL, January 25-28.
18. Romeo F., Habib G., 2016. Tuned bistable nonlinear energy sink: analytical design and numerical validation on a two-degree-of-freedom system, 6th Int. Conference on Nonlinear Vibrations, Localization and Energy Transfer, Liege, Belgium, July 4-8.
19. Romeo F. Manevitch L.I., 2015. Nonlinear non-stationary dynamics of weakly coupled pendula, XXII Congresso AIMETA, Genua, September 14-17.
20. Romeo F., Habib G., 2015. Tuned Bistable NES for 2-DOF Systems Vibration Absorption, SIAM Conference on Applications of Dynamical Systems, Snowbird, Utah, May 17-21.

21. Manevitch L.I., Romeo F., 2015. Non-stationary resonance dynamics of weakly coupled pendula, 13th International Conference Dynamical Systems – Theory and Applications, Lodz, Poland, December 7-10.
22. Romeo F., Lofrano E., Paolone A., 2015. Sensitivity analysis and improvement of a pseudo-modal approach for damage localization, ASME 2015 27th Conference on Mechanical Vibration and Noise, Paper No. DETC2015-46715, Boston, MA, August 2-5.
23. Romeo F., Gendelman O., 2015. Discrete breathers in forced chains of oscillators with cubic nonlinearities, IUTAM Symposium Analytical Methods in Nonlinear Dynamics, Frankfurt am Main, Germany, July 6-9.
24. Lofrano E., Romeo F., Paolone A., 2015. Damage identification via orthogonal empirical mode decomposition of curvature mode shapes, 7th International Conference on Structural Health Monitoring of Intelligent Infrastructure, Turin, Italy, July 1-3.
25. Romeo F., Georgiou I.T., 2014. Multi-Physics chaotic interaction in a coupled electro-magneto-mechanical system, ASME International Mechanical Engineering Congress and Exposition, Paper No. IMECE2014-38714, Montreal, Canada, November 14-20.
26. Romeo F., Lofrano E., Paolone A., 2014. Damage identification in a parabolic arch via orthogonal empirical mode decomposition, ASME 2014 26th Conference on Mechanical Vibration and Noise, Paper No. DETC2014-35529, Buffalo, NY, August 17-20.
27. Lofrano E., Romeo F., Paolone A., 2014. Damage identification in a parabolic arch through the combined use of modal properties and empirical mode decomposition, IX European Conference on Structural Dynamics – Eurodyn'14, Porto, Portugal, June 30-July 2.
28. Romeo F., Rega G., 2013. On localized solutions of chains of oscillators with cubic nonlinearity, XXI Congresso AIMETA, Torino, Italy, September 17-20.
29. Romeo F., 2013. Presenting Nervi's work through scale models: The NerViLab, IASS 2013 Symposium, Wroclaw, Poland, September 23-27.
30. Georgiou, I. T., Romeo, F., 2012. On the Nonlinear Multi-Physics Dynamics of a Mechanical Oscillator Coupled to an Electro-Magnetic Circuit, Proceedings of the 2012 ASME International Mechanical Engineering Congress and Exposition, November 5-11, Houston, Texas, USA.
31. Romeo F., 2010. The P.L. Nervi structural route: from intuition to computation through geometry, First International Conference on Structures & Architecture, Guimaraes, Portugal, July 21-23.
32. Romeo F., Rega G., 2008. Free dynamics of finite chains of weakly nonlinear oscillators, Sixth EUROMECH Nonlinear Dynamics Conference, Saint Petersburg, Russia, June 30 – July 4.
33. Romeo F., Rega G., 2007. Wave propagation in infinite and finite chains of weakly nonlinear oscillators, XVIII Congresso AIMETA, Brescia, Italy, September 11-14.
34. Paolone A., Romeo F. and Vasta A., 2007. Post-critical analysis of thin-walled beams under harmonic excitation, International Symposium on Recent Advances in Mechanics, Dynamical Systems and Probability Theory MDP2007, Palermo, Italy, June 3-6.
35. Romeo F., Rega G., 2006. Propagation properties of bi-coupled nonlinear oscillatory chains, III European Conference on Computational Mechanics, Lisbon, 5-9 Giugno.
36. Romeo F., Rega G., 2005. A nonlinear map approach to wave transmission in oscillatory chains with cubic nonlinearities, Fifth EUROMECH Nonlinear Dynamics Conference, Eindhoven, The Netherlands, 7 – 12 Agosto.
37. Romeo F., Paolone A., 2005. Propagation properties of three-coupled periodic mechanical systems, 20th ASME Biennial Conference on Mechanical Vibration and Noise, Paper No. DETC'05/VIB-85617, Long Beach, California, 24-28 Settembre.
38. Paolone A., Romeo F. and Vasta A., 2005. Stability analysis of thin-walled beams under periodic excitation, Sixth European Conference on Structural Dynamics – Eurodyn'05, Paris, France, 4-7 Settembre.
39. Romeo F., Rega G., 2005. Modalità di propagazione ondosa in catene mono- e bi-accoppiate di oscillatori nonlineari, XVII Congresso AIMETA, Firenze, 11-15 Settembre.
40. Romeo F., Paolone A., 2005. Comportamento dinamico di strutture periodiche tri-accoppiate, XVII Congresso AIMETA, Firenze, 11-15 Settembre.
41. Pavlovskaia E.E., Xu X., Romeo F., Cerri M.N., Lenci S., Wiercigroch M., 2005. Dynamics and control of vertically driven pendulum for energy extraction from sea waves, World Renewable Energy Congress, Aberdeen, UK, 22-27 Maggio.
42. Romeo F., Rega G., 2004. Propagation properties of nonlinear oscillatory chains, XXXII Advanced Problems in Mechanics Conference, St. Petersburg, Russia, 24 Giugno – 1 Luglio.
43. Pavlovskaia E.E., Xu X., Romeo F., Cerri M.N., Lenci S., Wiercigroch M., 2004. Experimental and theoretical studies of vertically driven pendulum, XXXII Advanced Problems in Mechanics Conference, St. Petersburg, Russia, 24 Giugno – 1 Luglio.
44. Luongo A., Romeo F., 2003. Analisi dinamica di strutture periodiche nonlineari mediante approssimazione asintotica della funzione di trasferimento, XVI Congresso AIMETA, Ferrara, 9-12 Settembre.
45. Luongo A., Romeo F., 2003. Real wave vectors for dynamic analysis of periodic structures, VIII International

Conference on Recent Advances in Structural Dynamics, Southampton, 14-16 Luglio.

46. Romeo F., Luongo A., 2002. Vibration suppression in piecewise periodic structures, IV Italian Conference of Computational Mechanics, Giulianova, 24-26 Giugno.
47. Gattulli V., Romeo F., 2002. Structural identifiability enhancement via feedback, 3rd World Conference on Structural Control, Como 7-12 Aprile.
48. Romeo F., Gattulli V. and Benedettini F., 2001. Nonlinear parametric identification of oscillating cables using wavelets, 18th ASME Biennial Conference on Mechanical Vibration and Noise, Paper No. DETC'01/VIB-21405, Pittsburgh, Pennsylvania, 9-13 Settembre.
49. Ghanem R., Romeo F., 2001. Reduction of arbitrary dynamical systems by wavelet bases, 18th ASME Biennial Conference on Mechanical Vibration and Noise, Paper No. DETC'01/VIB-21403, Pittsburgh, Pennsylvania, 9-13 Settembre.
50. Romeo F., Luongo A., 2001. Rappresentazione a parametri multipli del comportamento dinamico di strutture periodiche bi-accoppiate, XV Congresso AIMETA, Taormina, 26-29 Settembre.
51. Ghanem R., Romeo F., 2000. Identification of nonlinear time-varying dynamical systems in the wavelet domain, 7th International Conference on Sound and Vibration, Garmisch, 4-7 Luglio.
52. Gattulli V., Romeo F., 2000. Adaptive control of MDOF structures through non-collocated sensor-actuator pair, 3rd International Workshop on Structural Control, Parigi, 6-8 Luglio.
53. Ghanem R., Romeo F., 1998. Identification of dynamical systems from their projection on wavelet bases, 12th ASCE Engineering Mechanics Conference, La Jolla, CA, 17-20 Maggio.
54. Ghanem R., Romeo F., 1998. Identification of dynamical systems in the wavelet domain, SEM International Modal Analysis Conference, Santa Barbara, CA, 1-7 Febbraio.
55. D'Asdia P., Viskovic A., Romeo F., 1996. Influence of wind space-dependent correlations on dynamic response of structures, Third European Conference on Structural Dynamics – Eurodyn'96, Firenze, 5-8 Giugno.
56. D'Asdia P., Viskovic A., Romeo F., 1994. Sui metodi di generazione di modelli di vento come campi stocastici multidimensionali, III Convegno Nazionale di Ingegneria del Vento, Roma, 19-21 Ottobre.

Part XIII – Third Mission

Ordine degli Ingegneri della provincia di Roma - Abilitazione professionale (n° 18285), 1995.

XIII.a University Spin-off

2013/2020	DIAMONDS Srl – Diagnostica e Monitoraggio di Strutture Sapienza University of Rome, university member and co-founder

XIII.b – Public bodies consulting appointments

Start	End	Institution	Position
11.2020	present	Soprintendenza Archeologia, belle arti e paesaggio di Firenze	Scientific consultant Consulenza per la valutazione della capacità strutturale dello Stadio Franchi di Firenze di P.L. Nervi
09.2020	present	Cassa Depositi e Prestiti Immobiliare/ Istituto per il Credito Sportivo	Scientific expert Membro del comitato di esperti per la selezione del progettista per la riqualificazione dello Stadio Flaminio di Roma e dell'area circostante
04.2019	09.2020	Dipartimento di Architettura e Progetto, Sapienza Università di Roma	Structural consultant G124 2019 Renzo Piano: M.A.MA. Modulo per l'affettività e la Maternità – Carcere di Rebibbia, Roma
12.2018	present	Formez PA	Scientific expert Predisposizione quesiti sulle normative per le costruzioni per la selezione di Funzionari Specialisti per la P.A.
04.2018	present	Roma Capitale	Scientific Coordinator Protocollo d'intesa Roma Capitale/DISG per la valorizzazione dello Stadio Flaminio di Roma (D.G. 34/2018)
2014	present	Tribunale Civile di Roma	Court-appointed expert. Consulente Tecnico di Ufficio – Cemento armato e collaudi; dissesti statici
2009	2011	Ente Regionale per l'Abitazione Pubblica della provincia di Pesaro ed Urbino	Attività di diagnostica del dissesto per interventi urgenti su un fabbricato in via M. Amiata, Pesaro
1997	1998	Ministero per i Beni Culturali ed Ambientali	Valutazione del danneggiamento di fabbricati di interesse storico ed artistico in seguito agli eventi sismici dell'Umbria del settembre 1997

XIII.c – Invited recent seminars

Date	Description
29.01.2021	Tavola rotonda su: "Recupero architettonico e aspetti strutturali dello Stadio A. Franchi di Firenze" Ordine degli Ingegneri della Provincia di Firenze, in videoconferenza

16.10.2019	HBIM per un piano di conservazione multidisciplinare: lo Stadio Flaminio di Roma AUTODESK Future of Making – Architecture, Engineering, Construction, Rome
06.02.2019	Il processo BIM per un piano di conservazione: lo Stadio Flaminio di Roma Ordine degli Ingegneri della Provincia di Roma, Roma
08.02.2019	Analisi strutturale e BIM nella conservazione dell'architettura moderna: lo Stadio Flaminio di Pier Luigi e Antonio Nervi a Roma CSPFEA - IUAV, Venezia

XIII.d – Non-bibliometric publications

1. Diacodimitri A., Giodice M., Balsi M., Romeo F. 2021. Developing critical knowledge of twentieth-century cultural heritage via massive survey: the case of the conservation plan of the Stadio Flaminio in Rome, 2021. Digital Modernism Heritage Lexicon, Lectures Notes in Civil Engineering, Springer.
2. Romeo F., Carughi U., Margiotta Nervi E., Rossi P.O., Vittorini R., 2020. The Stadio Flaminio in Rome by Pier Luigi and Antonio Nervi: an interdisciplinary conservation plan, Technical Report from grant for the conservation of 20th century architecture (Keeping It Modern Report Library), Getty Foundation conservation plans repository.
3. Paris S., Romeo F., 2020. Economic Form in Teaching Design, between aesthetics, engineering and technologies. Some recent experiences in design studio, The Fourteenth International Conference on Design Principles & Practice, Common Ground Research Networks.
4. Posocco P., Marenaci T., Mazzetto A., Passeri M., Bronzo P., Gorgo L., Romeo F., Giodice M., Imbroglini C., Barletta E. 2020. M.A.MA. Modulo per l'affettività e la maternità, in Diario delle Periferie 2019 – G124 Renzo Piano al Senato, pp.112-161, ISBN 9788862424462.
5. Chiacchiari S., Lofrano E., Paolone A., Romeo F. 2017. Il comfort nelle passerelle pedonali. Parte 2: un caso studio, *Costruzioni Metalliche*, n. 6, pp. 11-24. ISSN 0010-9673.
6. Chiacchiari S., Lofrano E., Paolone A., Romeo F. 2016. Il comfort nelle passerelle pedonali. Parte 1: analisi comparativa dei criteri normativi, *Costruzioni Metalliche*, n. 5, pp. 12-26. ISSN 0010-9673.
7. Romeo F., 2013. Le Superfici: Efficienza Meccanica per il Design, in Lezioni di Design, Rdesignpress, pp. 102-109, ISBN 978-88-89819-30-2.
8. Baglioni L., Fallavollita F., Romeo F., Salvatore M., 2011. Le geometrie strutturali di Pier Luigi Nervi: riletture attraverso modelli, *L'industria delle Costruzioni*, n. 417, pp. 80-90.
9. Romeo F., Baglioni L., Fallavollita F., Salvatore M., 2010. I dodici modelli del Nervilab, in Pier Luigi Nervi. Architettura come sfida, a cura di Carlo Olmo e Cristiana Chiorino, Silvana Editoriale, pp. 236-237.
10. Romeo F., Calcagnoli M., 2010. Orbetello - digital und als Modell, *Bauwelt*, n. 19.

Rome, April 6, 2021