ALL. B1

Decreto Rettore Università di Roma "La Sapienza" n 3391/2019 del 07.11.2019, procedura selettiva di chiamata per n. . 1 posto di **Ricercatore a tempo determinato - Tipologia B** presso il Dipartimento di Ingegneria Meccanica e Aerospaziale, Facoltà di Ingegneria Civile e Industriale Settore Scientifico-disciplinare ING-IND/13, Settore concorsuale 09/A2 di cui al bando emanato con D.R. n. 3391/2019 con avviso pubblicato sulla G.U. – IV serie speciale n. 93 in data 26/11/2019, codice concorso 2019RTDB054, il cui bando è stato pubblicato per via telematica all'indirizzo: https://web.uniroma1.it/trasparenza/dettaglio_bando_albo/148336 .

NICOLA ROVERI
Curriculum Vitae "ai fini della pubblicazione"

Place: Rome
Date: 09/12/2019

Part I – General Information

Full Name	Nicola Roveri
Citizenship	Italian
Spoken Languages	Italian, English

Part II – Education

Type	Year	Institution	Notes (Degree, Experience,…)
University graduation	2005	Sapienza University of Rome	Master degree in Mechanical Engineering, 110/110 cum laude, defending a thesis on pseudo-damped dynamical systems
Post-graduate studies	2007-2008	Carnegie Mellon University, 5000, Forbes Avenue, 15213, Pittsburgh, USA	Joint research activities between Carnegie Mellon University and Sapienza on the development of innovative engineering systems with high damping properties
PhD	2005-2009	Sapienza University of Rome	PhD in Theoretical and Applied Mechanics, defending a thesis concerning: Energy sharing processes in complex resonators
Post-doctorate studies	2010	Centro Internazionale in Scienze Meccaniche (CISM) di Udine	Variational Models and Methods in Solid and Fluid Mechanics, 12-16 July 2010.
Post-doctorate studies	2012	University of Patras, Greece	Control, Health Monitoring and Wind Energy/Power Grid Energy, 3rd SYSWIND Summer School, July 16-20, 2012.

Part III – Appointments

IIIA – Academic Appointments

Start	End	Institution	Position
01/01/2019	31/12/2019	Dept. of Mechanical and Aerospace Engineering, Sapienza University of Rome.	Research term contract, title: Sistemi intelligenti di infrastrutture e veicoli.
01/08/2017	31/07/2018	Dept. of Mechanical and Aerospace Engineering, Sapienza University of Rome.	Research grant, title: Modellazione e controllo di sistemi dinamici.
01/05/2011	30/04/2014	Dept. of Mechanical and Aerospace Engineering, Sapienza University of Rome.	Research grant, title: Sviluppo di un sistema integrato per l'identificazione early-stage del danneggiamento strutturale di armamenti ferroviari.

IIIB – Other Research Appointments

Start	End	Institution	Position
01/09/2016	28/02/2017	CNIT: Consorzio Nazionale Interuniversitario per le Telecomunicazioni, Parma, Italy.	Research term contract, title: Progetto ITS 2020 – Sviluppo di sistemi di sensorizzazione e monitoraggio dati per la smart wheel.
16/06/2014	15/06/2016	INSEAN, Istituto Universitario Istituto Nazionale Per Studi Ed Esperienze Di Architettura Navale, Roma, Italy.	Research grant, title: Metodi e tecnologie di monitoraggio e diagnostica in ambito strutturale.
01/02/2015	31/12/2015	Facoltà di Ingegneria Civile e Industriale, Sapienza University of Rome.	Reference Professor, Master in Inventive Engineering.

IIIC – Other Appointments

Start	End	Institution	Position
01/11/2008	31/10/2009	Bridgestone TCE S.p.A., Castel Romano, RM, Italy.	Engineer at Bridgestone Technical Centre Europe.

Part IV – Teaching experience

Year	Institution	Lecture/Course
2015/2016	Ingegneria Elettrotecnica, Sapienza, Università di Roma.	Contract professor 3 CFU in Mechanical Background (1038510).
2015/2016	Ingegneria Meccanica, Sapienza, Università di Roma.	Contract professor 3 CFU in Mechanichal Vibrations (1044906).
2016/2017	Ingegneria Meccanica, Sapienza, Università di Roma.	Contract professor 3 CFU in Mechanichal Vibrations (1044906).
2017/2018	Ingegneria Meccanica, Sapienza, Università di Roma.	Contract professor 3 CFU in Mechanichal Vibrations (1044906).

2018/2019	Ingegneria Meccanica, Sapienza, Università di Roma.	Contract professor 3 CFU in Mechanichal Vibrations (1044906).

Part V - Society memberberships, Awards and Honors

Year	Title
2012	Mechanical Systems and Signal Processing, Impact Factor: 4.116. Most Cited Mechanical Systems and Signal Processing Articles published since 2012, Paper: Damage detection in structures under traveling loads by Hilbert-Huang transform. Volume 28, Issue , April 2012, Pages 128-144 . N. Roveri | A. Carcaterra. Citations: 83, Percentile: 99th.

Part VI – A) Research Activities, main topics

Keywords	Brief Description
Dynamical Systems	System dynamics, with emphasis to mechanical vibration, vibro-acoustics, dissipation and damping, monitoring and data processing with applications to vehicle dynamics such as wheeled vehicles and marine vehicles. The research activity includes theoretical, numerical and experimental investigations carried on in the advanced Vehicle System Dynamics Lab directed by Professor A. Carcaterra in Cisterna di Latina.
Vibrations and acoustics	Theoretical, numerical and experimental analysis of vibrations, with special emphasis to: dissipation and damping in dynamic systems, with special emphasis to new modelling based on the fuzzy-structure approach, irreversible energy storage, entropy and temperature concepts in structural dynamics. Vibration monitoring and signal processing for fault detection in complex mechanical systems (with related grants). Energy sharing process in complex resonators, linear and nonlinear energy pumping, energy confinement, routing and storage in complex structures for passive vibration control and vibration response prediction. Semi-active vibration control based on new variational techniques with applications to car suspension systems.
Monitoring, Signal Processing and related vehicle dynamics applications	The research involves new theoretical models and algorithms for data processing and their applications to structural damage detection, to accident detection, to tire dynamics monitoring and car motion. New algorithms and expert systems for fault detections in mechanical systems, with special applications to impact force detection in vehicle crashes (with industrial applications and grants). Empirical Mode Decomposition and Hilbert Transform algorithms for structural health monitoring with applications to damage identifications in bridge-like structures (and related industrial grants). Optical fiber based monitoring systems and Fiber Bragg Grids for experimental analysis of elastic response and non-invasive monitoring of mechanical structures (with industrial applications). Innovative Tire-monitoring techniques (OPTYRE) and data processing for the development of smart tires capable of monitoring in real-time the contact patch, tire hysteretic dissipation, tire-grip in dry and wet conditions (with industrial applications, patent and grants). Technique of combined railways-wheel train monitoring and data processing for simultaneous assessment of wearing and local damages of the rail and the wheels (with related industrial applications and grants). Car monitoring systems and sensing,

	related to smart innovative suspensions and their controls.

Part VI – B) Research Activities, carried out as investigator on the following Research Projects:

Year	Title	Program	Grant value
2008	Hydro Testing Alliance	Application of nanotechnology and intelligent materials to nonintrusive measure instruments for hydrodynamical applications	600.000 euro
2008-2014	SEALAB Funds: EU/Regione Lazio	The study and the realization of a new concept high-speed marine drone prototype, capable of riding waves at high speed. The drone is a concentrated of new technologies including new sensors and optimal control of stability systems.	868.000 euro
2009-2011	SENSIROAD Funds: ANAS	The project has been supported by the Experimental Dept. of ANAS, the largest Italian company in charge of construction of highways and roads, with supports objectives: development of (i) a new sensing system for detecting damages of viaducts, (ii) a system of sensing the air quality and cleaning the air inside the tunnels, (iii) an expert system capable of optimizing the road tracks to minimize the archeologic impact (in cooperation with the dept. of history and cultural heritage).	200.000 euro
2012	FBG vehicle sensing technology Funds: Sapienza	FBG applied to vehicle sensing technology as it is the case of tyre special monitoring and structural real-time damage detection	40.000 euro
2015	Award sapienza project: Energy-autonomous vehicles for water health monitoring Funds: Sapienza	Development of new systems for zero-impact water quality automatic analysis, by using drones and a energy production platform floating in waves.	60.000 euro
2014-2015	GLOBESENSE Funds: OctoTelematics spa	The project is aimed at developing new algorithms of data analysis registered by the accelerometer sensors in the black box of the car, detecting possible accidents occurred to the vehicle.	765.000 euro
2017-2018	OPTOBRIDGE Funds: BASF chemicals	Analysis of the strain along the beam that is equipped with Glass Fibers Reinforced Polymers with an embedded	80.000 euro

		set of optical Fiber Bragg Grating sensors, mounted on an Italian train bridge.	
2016-2018	SECURE PLATFORM Funds: Fiancantieri	Design of an autonomous drone for the recovery and rescue of men at sea.	384.000 euro

Part VII – Summary of Scientific Achievements

VII A – Total volume of the candidate production and related figures:

Product type	Number	Data Base	Start	End
Papers [international]	31	Scopus	2009	2019
Journal Papers [international]	13	Scopus	2009	2019

Total Impact factor	29.434 - Journal Citation Report
Total Citations	299 - Scopus
Total Citations Journal Papers	273 – Scopus
Average Citations per Product	9.65 - Scopus
Average Citations Journal Papers per Product	21 - Scopus
Hirsch (H) index	9 - Scopus
Normalized H index*	0.9 - Scopus

*****H index divided by the academic seniority.

VII B - Quality of the International Journals (rated by Impact Factor – IF) and number of papers the candidate published in them:

- MECHANICAL SYSTEMS AND SIGNAL PROCESSING, IF=5.1, Paper: 4.
- JOURNAL OF SOUND AND VIBRATION, IF=3.1, Paper: 1.
- SENSORS, IF=3.0, Paper: 3.
- JOURNAL OF THE ACOUSTICAL SOCIETY OF AMERICA, IF=1.8, Paper: 2.
- CONTINUUM MECHANICS AND THERMODYNAMICS, IF=1.8, Paper: 1.
- MATHEMATICS AND MECHANICS OF SOLIDS, IF=1.8, Paper: 1.
- SHOCK AND VIBRATION, IF=1.6, Paper: 1.

VII C –List of Patents produced by the candidate:

Title: "System and Method For Optical Measuring Of Tire Adhesion And Tire Suitable For Such Measurement". Inventors: A. Carcaterra, M. Platini, N. Roveri. Priority Date: 2011-07-27. Priority numbers: Patent No.: US 9,370,973 B2, Date of Patent: Jun. 21, 2016.

Part VIII A – Publications

1. Roveri, N., Pepe, G., Mezzani, F., Carcaterra, A., Culla, A., Milana, S.; OPTYRE—Real time estimation of rolling resistance for intelligent tyres (2019) Sensors (Switzerland), 19 (23), art. no. 5119, DOI: 10.3390/s19235119; IF 3.031.

2. Pepe, G., Roveri, N., Carcaterra, A.; Experimenting sensors network for innovative optimal control of car suspensions (2019) Sensors (Switzerland), 19 (14), art. no. 3062. Cited 1 time. DOI: 10.3390/s19143062; IF 3.031.
3. Pinto, M., Roveri, N., Pepe, G., Nicoletti, A., Balconi, G., Carcaterra, A.; Extraction of the beam elastic shape from uncertain FBG strain measurement points (2019) Mechanisms and Machine Science, 68, pp. 362-369. Cited 1 time.
4. Carcaterra, A., Roveri, N., Akay, A. Connectivity in waves and vibrations: One-to-six, one-to-all, all-to-all and random connections (2018) Proceedings of ISMA 2018 - International Conference on Noise and Vibration Engineering and USD 2018 - International Conference on Uncertainty in Structural Dynamics, pp. 2363-2370.
5. Roveri, N., Pensalfini, S., Carcaterra, A. Small-world based interactions in elastic metamaterials (2018) Proceedings of ISMA 2018 - International Conference on Noise and Vibration Engineering and USD 2018 - International Conference on Uncertainty in Structural Dynamics, pp. 3199-3212.
6. Carcaterra, A., Culla, A., Roveri, N. Thermodynamics of high frequency nonlinear vibrations (2018) INTER-NOISE 2018 - 47th International Congress and Exposition on Noise Control Engineering: Impact of Noise Control Engineering.
7. Milana, S., Roveri, N., Carcaterra, A., Culla, A. Continuous wavelet transform for structural health monitoring of a pipe (2018) Proceedings of ISMA 2018 - International Conference on Noise and Vibration Engineering and USD 2018 - International Conference on Uncertainty in Structural Dynamics, pp. 3925-3933.
8. Pinto, M., Roveri, N., Pepe, G., Nicoletti, A., Balconi, G., Carcaterra, A. Embedded optical sensors for vibration monitoring of large structures (2018) Proceedings of ISMA 2018 - International Conference on Noise and Vibration Engineering and USD 2018 - International Conference on Uncertainty in Structural Dynamics, pp. 3875-3885.
9. Coppo, F., Pepe, G., Roveri, N., Carcaterra, A. A multisensing setup for the intelligent tire monitoring (2017) Sensors (Switzerland), 17 (3), art. no. 576, . Cited 15 times. DOI: 10.3390/s17030576; IF 3.031.
10. Mezzani, F., Coppo, F., Pensalfini, S., Roveri, N., Carcaterra, A. Twin-waves propagation phenomena in magnetically-coupled structures (2017) Procedia Engineering, 199, pp. 711-716. Cited 4 times. DOI: 10.1016/j.proeng.2017.09.016.
11. Pepe, G., Roveri, N., Carcaterra, A. Prototyping a new car semi-active suspension by variational feedback controller (2016) Proceedings of ISMA 2016 - International Conference on Noise and Vibration Engineering and USD2016 - International Conference on Uncertainty in Structural Dynamics, pp. 231-245. Cited 6 times.
12. Carcaterra, A., Pepe, G., Roveri, N. Energy exchange between nonlinear oscillators: An entropy foundation (2016) Proceedings of ISMA 2016 - International Conference on Noise and Vibration Engineering and USD2016 - International Conference on Uncertainty in Structural Dynamics, pp. 2567-2579. Cited 1 time.
13. Roveri, N., Pepe, G., Carcaterra, A. On line estimation of rolling resistance for intelligent tires (2016) Proceedings of ISMA 2016 - International Conference on Noise and Vibration Engineering and USD2016 - International Conference on Uncertainty in Structural Dynamics, pp. 1725-1740. Cited 3 times.
14. Roveri, N., Pepe, G., Carcaterra, A. OPTYRE - A new technology for tire monitoring: Evidence of contact patch phenomena (2016) Mechanical Systems and Signal Processing, 66-67, pp. 793-810. Cited 14 times. DOI: 10.1016/j.ymssp.2015.06.019; IF 5.005.
15. Roveri, N., Carcaterra, A. Unsupervised identification of damage and load characteristics in time-varying systems (2015) Continuum Mechanics and Thermodynamics, 27 (4-5), pp. 531-550. Cited 9 times. DOI: 10.1007/s00161-013-0328-3; IF 1.758.
16. Carcaterra, A., Roveri, N., Pepe, G. Fractional dissipation generated by hidden wave-fields (2015) Mathematics and Mechanics of Solids, 20 (10), pp. 1251-1262. Cited 14 times. DOI: 10.1177/1081286513518941; IF 2.953.
17. Roveri, N., Carcaterra, A., Sestieri, A. Real-time monitoring of railway infrastructures using fibre Bragg grating sensors (2015) Mechanical Systems and Signal Processing, 60, pp. 14-28. Cited 20 times. DOI: 10.1016/j.ymssp.2015.01.003; IF 5.005.

18. Roveri, N., Carcaterra, A., Akay, A. Frequency intermittency and energy pumping by linear attachments (2014) Journal of Sound and Vibration, 333 (18), pp. 4281-4294. Cited 6 times. DOI: 10.1016/j.jsv.2014.04.003; IF 3.123.
19. Roveri, N., Carcaterra, A., Sestieri, A. Remote condition monitoring of railway track using FBG sensors (2014) Proceedings of ISMA 2014 - International Conference on Noise and Vibration Engineering and USD 2014 - International Conference on Uncertainty in Structural Dynamics, pp. 3527-3542. Cited 1 time.
20. Roveri, N., Carcaterra, A., Sestieri, A. Real time monitoring and wear estimation of railway track with FBG sensors (2014) MESA 2014 - 10th IEEE/ASME International Conference on Mechatronic and Embedded Systems and Applications, Conference Proceedings, art. no. 6935619, . Cited 2 times. DOI: 10.1109/MESA.2014.6935619.
21. Carcaterra, A., Graziani, G., Pepe, G., Roveri, N. Cable oscillations in a streamflow: Art in the Tiber (2014) Proceedings of the International Conference on Structural Dynamic , EURODYN, 2014-January, pp. 3187-3193. Cited 2 times.
22. Carcaterra, A., Roveri, N. Tire grip identification based on strain information: Theory and simulations (2013) Mechanical Systems and Signal Processing, 41 (1-2), pp. 564-580. Cited 17 times. DOI: 10.1016/j.ymssp.2013.06.002; IF 5.005.
23. Roveri, N., Carcaterra, A., Platini, M. Health monitoring of marine vehicles structures by phase-based FBG detectors (2012) Sustainable Maritime Transportation and Exploitation of Sea Resources - Proceedings of the 14th International Congress of the International Maritime Association of the Mediterranean, IMAM 2011, 1, pp. 419-426.
24. Roveri, N., Carcaterra, A. Damage detection in structures under traveling loads by Hilbert-Huang transform (2012) Mechanical Systems and Signal Processing, 28, pp. 128-144. Cited 114 times. DOI: 10.1016/j.ymssp.2011.06.018; IF 5.005.
25. Roveri, N., Carcaterra, A. Structural health monitoring of time-varying systems by output-only identification (2012) International Conference on Noise and Vibration Engineering 2012, ISMA 2012, including USD 2012: International Conference on Uncertainty in Structure Dynamics, 5, pp. 3373-3387. Cited 5 times.
26. Carcaterra, A., Roveri, N. Energy distribution in impulsively excited structures (2012) Shock and Vibration, 19 (5), pp. 1143-1163. Cited 4 times. DOI: 10.3233/SAV-2012-0719; IF 1.628.
27. Roveri, N., Carcaterra, A., Akay, A. Targeted energy pumping using a linear complex attachment (2012) International Conference on Noise and Vibration Engineering 2012, ISMA 2012, including USD 2012: International Conference on Uncertainty in Structure Dynamics, 3, pp. 2393-2407. Cited 1 time.
28. Roveri, N., Carcaterra, A., Platini, M. Health monitoring of marine vehicles structures by phase-based FBG detectors (2011) Sustainable Maritime Transportation and Exploitation of Sea Resources, pp. 419-426.
29. Roveri, N., Carcaterra, A., Akay, A. Vibration absorption using non-dissipative complex attachments with impacts and parametric stiffness (2011) Proceedings of the 8th International Conference on Structural Dynamics, EURODYN 2011, pp. 1871-1877.
30. Roveri, N., Carcaterra, A., Akay, A. Vibration absorption using non-dissipative complex attachments with impacts and parametric stiffness (2009) Journal of the Acoustical Society of America, 126 (5), pp. 2306-2314. Cited 29 times. DOI: 10.1121/1.3212942; IF 1.605.
31. Roveri, N., Carcaterra, A., Akay, A. Energy equipartition and frequency distribution in complex attachments (2009) Journal of the Acoustical Society of America, 126 (1), pp. 122-128. Cited 30 times. DOI: 10.1121/1.3147502; IF 1.605.

Part VIII B – Selected Publications

List of the publications selected for the evaluation. For each publication report title, authors, reference data, journal IF (if applicable), citations, press/media release (if any).

1. Roveri, N., Pepe, G., Mezzani, F., Carcaterra, A., Culla, A., Milana, S.; OPTYRE—Real time estimation of rolling resistance for intelligent tyres (2019) Sensors (Switzerland), 19 (23), art. no. 5119, DOI: 10.3390/s19235119; IF 3.031.

2. Roveri, N., Pensalfini, S., Carcaterra, A.; Small-world based interactions in elastic metamaterials; (2018) Proceedings of ISMA 2018 - International Conference on Noise and Vibration Engineering and USD 2018 - International Conference on Uncertainty in Structural Dynamics, pp. 3199-3212. ISBN: 9789-073802995.
3. Pepe, G., Roveri, N., Carcaterra, A.; Experimenting sensors network for innovative optimal control of car suspensions (2019) Sensors (Switzerland), 19 (14), art. no. 3062. Cited 1 time. DOI: 10.3390/s19143062; IF 3.031.
4. Coppo, F., Pepe, G., Roveri, N., Carcaterra, A. A multisensing setup for the intelligent tire monitoring (2017) Sensors (Switzerland), 17 (3), art. no. 576, . Cited 15 times. DOI: 10.3390/s17030576; IF 3.031.
5. Roveri, N., Pepe, G., Carcaterra, A. OPTYRE - A new technology for tire monitoring: Evidence of contact patch phenomena (2016) Mechanical Systems and Signal Processing, 66-67, pp. 793-810. Cited 14 times. DOI: 10.1016/j.ymssp.2015.06.019; IF 5.005.
6. Pepe, G., Roveri, N., Carcaterra, A.; Prototyping a new car semi-active suspension by variational feedback controller; (2016) Proceedings of ISMA 2016 - International Conference on Noise and Vibration Engineering and USD2016 - International Conference on Uncertainty in Structural Dynamics, pp. 231-245.
7. Roveri, N., Carcaterra, A. Unsupervised identification of damage and load characteristics in time-varying systems (2015) Continuum Mechanics and Thermodynamics, 27 (4-5), pp. 531-550. Cited 9 times. DOI: 10.1007/s00161-013-0328-3; IF 1.758.
8. Carcaterra, A., Roveri, N., Pepe, G. Fractional dissipation generated by hidden wave-fields (2015) Mathematics and Mechanics of Solids, 20 (10), pp. 1251-1262. Cited 14 times. DOI: 10.1177/1081286513518941; IF 2.953.
9. Roveri, N., Carcaterra, A., Sestieri, A. Real-time monitoring of railway infrastructures using fibre Bragg grating sensors (2015) Mechanical Systems and Signal Processing, 60, pp. 14-28. Cited 20 times. DOI: 10.1016/j.ymssp.2015.01.003; IF 5.005.
10. Roveri, N., Carcaterra, A., Akay, A. Frequency intermittency and energy pumping by linear attachments (2014) Journal of Sound and Vibration, 333 (18), pp. 4281-4294. Cited 6 times. DOI: 10.1016/j.jsv.2014.04.003; IF 3.123.
11. Carcaterra, A., Roveri, N. Tire grip identification based on strain information: Theory and simulations (2013) Mechanical Systems and Signal Processing, 41 (1-2), pp. 564-580. Cited 17 times. DOI: 10.1016/j.ymssp.2013.06.002; IF 5.005.
12. Roveri, N., Carcaterra, A. Damage detection in structures under traveling loads by Hilbert-Huang transform (2012) Mechanical Systems and Signal Processing, 28, pp. 128-144. Cited 114 times. DOI: 10.1016/j.ymssp.2011.06.018; IF 5.005.
13. Carcaterra, A., Roveri, N. Energy distribution in impulsively excited structures (2012) Shock and Vibration, 19 (5), pp. 1143-1163. Cited 4 times. DOI: 10.3233/SAV-2012-0719; IF 1.628.
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15. Roveri, N., Carcaterra, A., Akay, A. Energy equipartition and frequency distribution in complex attachments (2009) Journal of the Acoustical Society of America, 126 (1), pp. 122-128. Cited 30 times. DOI: 10.1121/1.3147502; IF 1.605.

Rome, 09/12/2019 Nicola Roveri