POLITECNICO MILANO 1863

PUBLIC SELECTION ESTABLISHED WITH DIRECTOR'S DECREE NO. 10937 OF 25/11/2021 PURSUANT TO THE NOTICE PUBLISHED IN THE OFFICIAL GAZETTE NO. 28/12/2021, n. 103 FOR 1 POSITION AS FULL PROFESSOR FOR THE COMPETITION SECTOR 09/A2 - APPLIED MECHANICS - SDS ING-IND/13 - APPLIED MECHANICS, PURSUANT TO ART. 18 - LAW 240/2010, AT THE POLITECNICO DI MILANO - DEPARTMENT OF MECHANICAL ENGINEERING (PROCEDURE CODE 2021_PRO_DMEC_5).

FINAL REPORT

The Selection Board, appointed with RD Index No. 1065 ref. No. 19396 of 03 February 2022, composed by the following Professors:

Prof. BRUNI Stefano - Politecnico di Milano;
Prof. CADETE AMBRÓSIO Jorge Alberto - Instituto Superior Técnico, Lisboa, Portugal;
Prof. FISCHER Peter - Graz University of Technology,

met on 23/03/2022 at 10 a.m., for the first teleconference meeting.
Each board member was connected from his/her workstation.

At the start of the session the members of the Selection Board named the Chairman and the Secretary of the Selection Board:

Prof. BRUNI Stefano - Politecnico di Milano, Chairman;
Prof. BRUNI Stefano - Politecnico di Milano, Secretary.

Each member of the board declared not to have conjugal nor family relationship or other degree of kinship or affinity up to the fourth degree, not to be in same-sex civil union (as per art. 1 of Law No. 76 of 20.05.2016) and not to form a cohabiting couple (as per art. 1, paragraphs 37 et seq. of Law No. 76 of 20.05.2016) with the other members of this board and that there were no reasons for abstention pursuant to arts. 51 and 52 of the Civil Procedure Code.

The members of the Selection Board and the Secretary declared, pursuant to art. 35-bis of Legislative Decree 165/2001, not to have criminal convictions, even with non-definitive sentences, for offences provided for in Chapter I, Title II of the second book of the Criminal Code.

The Selection Board established the criteria and the parameters according to which the assessment was carried out, and set the minimum score below which the candidate shall not be included in the ranking of candidates.

On 03/05/2022 at 15:00, the Selection Board met on Teams to inspect the list of applicants, who were:

1) Karimi Hamid Reza
2) Melzi Stefano

Each member of the board declared not to have conjugal nor family relationship or other degree of kinship or affinity up to the fourth degree, not to be in same-sex civil union (as per art. 1 of Law No. 76 of 20.05.2016) and not to form a cohabiting couple (as per art. 1, paragraphs 37 et seq. of Law No. 76 of 20.05.2016) with

the candidates and stated that there were no reasons for abstention pursuant to arts. 51 and 52 of the Civil Procedure Code.

Pursuant to the examination and after adequate evaluation, the Selection Board assigned a score to each of the established criteria and a judgment to each publication submitted by the candidate; furthermore, the board evaluated the knowledge of the English language.

Therefore the board, considering the sum of the scores given, expressed a collective judgment in relation to the quantity and the quality of publications, evaluating the overall productivity of the applicant, also with regard to his/her period of activity.

The above-mentioned judgments are attached to this report and they are an integral part of it (Attachment No. 1 to this final report).

The Selection Board drew up, according to the majority of its members, a ranking of candidates selected to carry out the scientific/teaching functions for which the selection was called, in a number equal to a maximum of five times the number of positions available in the competition (Attachment No. 2 to this final report).

THE SELECTION BOARD

Prof. Stefano Bruni (Chairman and Secretary) _____

Prof. Jorge Alberto Cadete Ambrósio (Member) _____

Prof. Peter Fischer (Member) _____

Assinado por: **Jorge Alberto Cadete Ambrósio**
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POLITECNICO MILANO 1863

PUBLIC SELECTION ESTABLISHED WITH DIRECTOR'S DECREE NO. 2021_PRO_DMEC_5 OF 25/11/2021 PURSUANT TO THE NOTICE PUBLISHED IN THE OFFICIAL GAZETTE NO. 28/12/2021, n. 103 FOR 1 POSITION AS FULL PROFESSOR FOR THE COMPETITION SECTOR 09/A2 - APPLIED MECHANICS - SDS ING-IND/13 - APPLIED MECHANICS, PURSUANT TO ART. 18 - LAW 240/2010, AT THE POLITECNICO DI MILANO - DEPARTMENT OF MECHANICAL ENGINEERING (PROCEDURE CODE 2021_PRO_DMEC_5).

ATTACHMENT No. 1 to the FINAL REPORT

CRITERIA	Quality of scientific and/or project production, assessed on the basis of criteria and parameters recognized by the international scientific community of reference	Teaching activity at the university level in Italy or abroad	Scientific responsibility for funded research projects	Results obtained in technology transfer in terms of participation in the creation of new enterprises (spin off), development, use and marketing of patents	Total
Karimi Hamid Reza	30	27	9	9	75
Melzi Stefano	22	27	20	16	85

CANDIDATE: Karimi Hamid Reza

CURRICULUM:
The candidate holds a BSc in Electrical Engineering-Power Systems Engineering from the Sharif University of Technology, Iran, a MSc in Electrical Engineering-Control Systems Engineering from the University of Tehran, Iran and a PhD in Electrical Engineering-Control Systems Engineering from the University of Tehran, Iran.
The candidate's present position is with the Politecnico di Milano as Associate Professor in the Call Sector 09/A2 "Applied Mechanics" - SSD ING-IND/13 "Applied Mechanics".
His research interests are concerned with the general theory of control, control systems and actuations, computational methods, with applications to vehicles, offshore wind turbine/farm control, mechatronics, health monitoring, vibration control, robotics and automation. In these fields, the candidate authored/co-authored a total of 892 publications, based on the SCOPUS database (search performed on May 3rd 2022).
The candidate is also author or co-author of 9 books.
Prof. Karimi has an excellent record of didactic activities carried out in Italian and foreign Universities, he supervised 20 PhD candidates and several MSc and BSc students.
The candidate was principal investigator in 8 research projects and took part in another 11 research projects with different roles. He is not author of patents nor he has been involved in the creation of spin-offs

SUBMITTED PUBLICATIONS:

No.	Type/Title of Publication	Judgment
1	Kjell G. Robbersmyr, Herman Olsen, Hamid Reza Karimi, Kristian Tønder, Oil whip-induced wear in journal bearings, International Journal of Advanced Manufacturing Technology (2014)	Very good
2	Zhiwen Chen, Xueming Li, Chao Yang,Tao Peng, Chunhua Yang, H.R. Karimi, Weihua Gui, A data-driven ground fault detection and isolation method for main circuit in railway electrical traction system, ISA Transactions (2019)	Excellent
3	Hui Zhang, Xiaoyu Huang, Junmin Wangb, Hamid Reza Karimi, Robust energy-to-peak sideslip angle estimation with applications to ground vehicles, Mechatronics (2015)	Excellent
4	Yan Zhao, Tianzhi Wang, Hamid Reza Karimi, Distributed cruise control of high-speed trains, Journal of the Franklin Institute (2017)	Very good
5	Peng Mei, Hamid Reza Karimi, Shichun Yang, Bin Xu, Cong Huang, An adaptive fuzzy sliding-mode control for regenerative braking system of electric vehicles, International Journal of Adaptive Control and Signal Processing (2021)	Very good
6	Ning Wang, Hamid Reza Karimi, Hongyi Li, Shun-Feng Su, Accurate Trajectory Tracking of Disturbed Surface Vehicles: A Finite-Time Control Approach, IEEE/ASME Transactions on Mechatronics (2019)	Excellent
7	Suneel Kumar Kommuri, Michael Defoort, Hamid Reza Karimi, Kalyana Chakravarthy Veluvolu, A Robust Observer-Based Sensor Fault-Tolerant Control for PMSM in Electric Vehicles, IEEE Transactions on Industrial Electronics (2016)	Excellent
8	Hamid Reza Karimi, Witold Pawlus, Kjell G. Robbersmyr, Signal reconstruction, modeling and simulation of a vehicle full-scale crash test based on Morlet wavelets, Neurocomputing (2012)	Very good
9	Lin Zhao, Witold Pawlus, Hamid Reza Karimi, Kjell G. Robbersmyr, Data-Based Modeling of Vehicle Crash Using Adaptive Neural-Fuzzy Inference System, IEEE/ASME Transactions on Mechatronics (2014)	Excellent
10	Chuan Hu, Rongrong Wang, Fengjun Yan, Hamid Reza Karimi, Robust Composite Nonlinear Feedback Path-Following Control for Independently Actuated Autonomous Vehicles With Differential Steering, IEEE Transactions on Transportation Electrification (2016)	Excellent
11	Rongrong Wang, Hui Jing, Fengjun Yan, Hamid Reza Karimi, Nan Chen, Optimization and finite-frequency H∞ control of active suspensions in in-wheel motor driven electric ground vehicles, Journal of the Franklin Institute (2015)	Excellent
12	Zuolong Wei, Kjell G. Robbersmyr, Hamid R. Karimi, Data-based modeling and estimation of vehicle crash processes in frontal fixed-barrier crashes, Journal of the Franklin Institute (2017)	Very good
13	Hongyi Li, Xingjian Jing, Hamid Reza Karimi, Output-Feedback-Based H∞ Control for Vehicle Suspension Systems With Control Delay, IEEE Transactions on Industrial Electronics (2014)	Excellent
14	Chao Yang, Weihua Gui, Zhiwen Chen, Jingrong Zhang, Tao Peng, Chunhua Yang, Hamid Reza Karimi, Steven X. Ding, Voltage Difference Residual-Based Open-Circuit Fault Diagnosis Approach for Three-Level Converters in Electric Traction Systems, IEEE Transactions on Power Electronics (2020)	Excellent

15	Daoguang Yang, Hamid Reza Karimi, Len Gelman, A Fuzzy Fusion Rotating Machinery Fault Diagnosis Framework Based on the Enhancement Deep Convolutional Neural Networks, Sensors (2022)	Very good

Overall collective judgement

QUALITY OF SCIENTIFIC AND/OR PROJECT PRODUCTION, ASSESSED ON THE BASIS OF CRITERIA AND PARAMETERS RECOGNIZED BY THE INTERNATIONAL SCIENTIFIC COMMUNITY OF REFERENCE:

The candidate submitted 15 publications that have been examined separately and analytically by the board. All the publications submitted are published in peer-reviewed international journals.
For each publication, the board provided an evaluation as reported in the table above, based on the following criteria:

- quality of the publication contents, degree of originality and soundness of the methodological approach;
- editorial relevance of the place of publication;
- number of citations and citations per year as obtained from the SCOPUS database.

The Selection Board unanimously considers the publications submitted by the candidate of very good to excellent level and, for the most part, consistent with the Call Sector 09/A2 “Applied Mechanics” - SSD ING-IND/13 “Applied Mechanics”. Furthermore, the Committee unanimously considers as outstanding the overall scientific production of the candidate resulting from his CV and from the SCOPUS database.

DIDACTIC ACTIVITIES CARRIED OUT IN ITALIAN OR FOREIGN UNIVERSITIES OR BODIES:
The candidate has a long and thorough teaching experience, with didactic activities mostly carried out at the University of Agder (Norway) in years 2009-2016 and at the Politecnico di Milano since year 2016. He has been the supervisor of 4 post-docs, 20 PhD candidates and several MSc and BSc students.
The Selection Board unanimously considers that the candidate’s teaching activity is excellent and for the most part consistent with the Call Sector 09/A2 “Applied Mechanics” - SSD ING-IND/13 “Applied Mechanics”.

SCIENTIFIC RESPONSIBILITY FOR FUNDED RESEARCH PROJECTS:
The candidate was principal investigator in 8 research projects and was co-investigator / investigator / partner / external member in 11 other projects. The funded budget is not declared by the candidate in the documents submitted for this selection.
The Selection Board considers the candidate’s record of scientific responsibility for funded research projects as acceptable.

RESULTS OBTAINED IN TECHNOLOGY TRANSFER IN TERMS OF PARTICIPATION IN THE CREATION OF NEW ENTERPRISES (SPIN OFF), DEVELOPMENT, USE AND MARKETING OF PATENTS:
The candidate is not owner or co-owner of patents and has not been involved in the creation of spin-offs.

SCRUTINY OF THE DEGREE OF KNOWLEDGE OF THE ENGLISH LANGUAGE:
Considering that:

- The candidate is author/co-author of a large number of scientific contributions produced in English language;
- The candidate has been involved in international scientific projects with English as their language;

and considering the CV and publications submitted by the candidate for this selection procedure, the Selection Board unanimously evaluates the candidate’s proficiency of the English language as “excellent” and declares that the candidate fulfills all the requirements concerning knowledge of English language set forth by this public selection.

CANDIDATE: Melzi Stefano

CURRICULUM:
The candidate holds a MSc (5-years course) in Mechanical Engineering from the Politecnico di Milano, Italy and a PhD in Applied Mechanics from the Politecnico di Milano, Italy.
The candidate's present position is with the Politecnico di Milano as Associate Professor in the Call Sector 09/A2 "Applied Mechanics" - SSD ING-IND/13 "Applied Mechanics".
His research interests are concerned with ground vehicle dynamics, tyre mechanics, vibrations and dynamics of mechanical systems, sports engineering, cable dynamics. In these fields, the candidate authored/co-authored a total of 113 publications, based on the CV submitted by the candidate.
Prof. Melzi has an excellent record of didactic activities carried out in Italian Universities, he supervised or is supervising 6 PhD candidates and more than 35 MSc students.
Prof. Melzi has an excellent record of scientific responsibility for funded projects, having been the principal investigator in 25 research projects and co-investigator in approximately 30 research projects. He is co-owner of three international patents.

SUBMITTED PUBLICATIONS:

No.	Type/Title of Publication	Judgment
1	Alessandro Medolago, Stefano Melzi, A flexible multi-body model of a surface miner for analyzing the interaction between rock-cutting forces and chassis vibrations, International Journal of Mining Science and Technology (2021)	Very good
2	Visakh V Krishna, Daniel Jobstfinke, Stefano Melzi, Mats Berg, An integrated numerical framework to investigate the running safety of overlong freight trains, Proceedings of the Institution of IMechE - Part F: Journal of Rail and Rapid Transit (2020)	Excellent
3	Arash Hosseinian Ahangarnejad, Stefano Melzi, Mehdi Ahmadian, Integrated vehicle dynamics system through coordinating active aerodynamics control, active rear steering, torque vectoring and hydraulically interconnected suspension, International Journal of Automotive Technology (2019)	Very good
4	S. Giappino, S. Melzi, G. Tomasini, High-speed freight trains for intermodal transportation: Wind tunnel study on the aerodynamic coefficients of container wagons, Journal of Wind Engineering & Industrial Aerodynamics (2018)	Excellent
5	Qing Wu, Maksym Spiryagin, Colin Cole, Chongyi Chang, Gang Guo, Alexey Sakalo, Wei Wei, Xubao Zhao, Nico Burgelman, Pier Wiersma, Hugues Chollet, Michel Sebes, Amir Shamdani, Stefano Melzi, Federico Cheli, Egidio di Gialleonardo, Nicola Bosso, Nicolò Zampieri, Shihui Luo, Honghua Wu, Guy-Léon Kaza, International benchmarking of longitudinal train dynamics simulators: results, Vehicle System Dynamics (2017)	Excellent
6	F. Cheli, E. Di Gialleonardo, S. Melzi, Freight trains dynamics: effect of payload and braking power distribution on coupling forces, Vehicle System Dynamics (2017)	Excellent
7	Ahmed K Aboubakr, Martino Volpi, Ahmed A Shabana, Federico Cheli, Stefano Melzi, Implementation of electronically controlled pneumatic brake formulation in longitudinal train dynamics algorithms, Proceedings of the Institution of IMechE - Part K: Journal of Multi-body Dynamics (2016)	Very good
8	S. Melzi, S. Negrini, E. Sabbioni, Numerical analysis of the effect of tire characteristics, soil response and suspensions tuning on the comfort of an agricultural vehicle, Journal of Terramechanics (2014)	Very good

9	F. Cheli, S. Melzi, E. Sabbioni, Development of an ESP control logic based on force measurements provided by smart tires, Sae International Journal Of Passenger Cars - Mechanical Systems (2013)	Very good
10	S. Melzi, V. D'Alessandro, M. Sbrosi, M. Brusarosco, Phenomenological analysis of hydroplaning through intelligent tyres, Vehicle System Dynamics (2012)	Very good
11	S. Melzi, E. Sabbioni, On the vehicle sideslip angle estimation through neural networks: numerical and experimental results, Mechanical Systems And Signal Processing (2011)	Excellent
12	F. Cheli, S. Melzi, Experimental characterization and modelling of a side buffer for freight trains, Proceedings of the Institution of IMechE - Part F: Journal of Rail and Rapid Transit (2010)	Very good
13	F. Cheli, S. Melzi, E. Leo, E. Sabbioni, On the impact of 'smart tyres' on existing ABS/EBD control systems, Vehicle System Dynamics (2010)	Excellent
14	F. Cheli, E. Sabbioni, M. Pesce, S. Melzi, A methodology for vehicle sideslip angle identification: comparison with experimental data, Vehicle System Dynamics (2007)	Excellent
15	B. Pizzigoni, A. Collina, B. Flapp, S. Melzi, Effect of metallised carbon content of collector strip on the wear of contact wire-collector strip pair in railway systems, Tribotest (2007)	Good

Overall collective judgement

QUALITY OF SCIENTIFIC AND/OR PROJECT PRODUCTION, ASSESSED ON THE BASIS OF CRITERIA AND PARAMETERS RECOGNIZED BY THE INTERNATIONAL SCIENTIFIC COMMUNITY OF REFERENCE:

The candidate submitted 15 publications that have been examined separately and analytically by the board. All publications submitted are published in peer-reviewed international journals.
For each publication, the board provided an evaluation as reported in the table above, based on the following criteria:

- quality of the publication contents, degree of originality and soundness of the methodological approach;
- editorial relevance of the place of publication;
- number of citations and citations per year as obtained from the SCOPUS database.

The Selection Board unanimously considers the publications submitted by the candidate of very good to excellent level and fully consistent with the Call Sector 09/A2 “Applied Mechanics” - SSD ING-IND/13 “Applied Mechanics”. Furthermore, the Committee unanimously considers as very good the overall scientific production of the candidate resulting from his CV and from the SCOPUS database.

DIDACTIC ACTIVITIES CARRIED OUT IN ITALIAN OR FOREIGN UNIVERSITIES OR BODIES:
The candidate has a long and thorough teaching experience, with didactic activities mostly carried out at the Politecnico di Milano since year 2003. He has been the supervisor of 6 PhD candidates and more than 35 MSc students.
The Selection Board unanimously considers that the candidate’s teaching activity is excellent and fully consistent with the Call Sector 09/A2 “Applied Mechanics” - SSD ING-IND/13 “Applied Mechanics”.

SCIENTIFIC RESPONSIBILITY FOR FUNDED RESEARCH PROJECTS:
The candidate was principal investigator in 25 research projects and co-investigator in 32 other projects.
The funded budget (limited to projects in which the candidate was principal investigator) is above 1 M€.
The Selection Board unanimously considers the candidate’s record of scientific responsibility for funded research projects as excellent.

RESULTS OBTAINED IN TECHNOLOGY TRANSFER IN TERMS OF PARTICIPATION IN THE CREATION OF NEW ENTERPRISES (SPIN OFF), DEVELOPMENT, USE AND MARKETING OF PATENTS:
The candidate is co-owner of three international patents. He has not been involved in the creation of spin-offs.
The Selection Board unanimously considers the results obtained by the candidate in technology transfer as very good.

SCRUTINY OF THE DEGREE OF KNOWLEDGE OF THE ENGLISH LANGUAGE:
Considering that:

- The candidate is author/co-author of a large number of scientific contributions produced in English language;
- The candidate has been involved in international scientific projects with English as their language;

and considering the CV and publications submitted by the candidate for this selection procedure, the Selection Board unanimously evaluates the candidate's proficiency of the English language as "excellent" and declares that the candidate fulfills all the requirements concerning knowledge of English language set forth by this public selection.

THE SELECTION BOARD

Prof. .....(Chairman)

Prof. JORGE AMBRÓSIO *(Member)*

Prof. Peter FISCHER, (Member) *(Secretary)*

Assinado por: **Jorge Alberto Cadete Ambrósio**
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POLITECNICO MILANO 1863

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ATTACHMENT No. 2 to the FINAL REPORT

MERIT RANKING

SURNAME AND NAME	Overall score
Melzi Stefano	85
Karimi Hamid Reza	75

Milan, 03/05/ 2022

THE SELECTION BOARD

Prof. .....(Chairman)

Prof. JORGE AMBRÓSIO *.....(Member)*

Prof. Peter FISCHER (Member) *.....(Secretary)*

Assinado por: **Jorge Alberto Cadete Ambrósio**
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