



PUBLIC SELECTION ESTABLISHED WITH DIRECTOR'S DECREE NO. 2017/PRA_ENE15 OF 03/08/2017 PURSUANT TO THE NOTICE PUBLISHED IN THE OFFICIAL GAZETTE NO. 08/09/2017, n.68 FOR 1 POSITION AS ASSOCIATE PROFESSOR FOR THE COMPETITION SECTOR 09/C1 - FLUID MACHINERY, ENERGY SYSTEMS AND POWER GENERATION - SDS ING-IND/09 - ENERGY SYSTEMS AND POWER GENERATION, PURSUANT TO ART. 18 - LAW 240/2010, AT THE POLITECNICO DI MILANO - DEPARTMENT OF ENERGY (PROCEDURE CODE 2017/PRA_ENE15).

FINAL REPORT

The Selection Board, appointed with RD Index No. 6071 ref. No. 92842 of 10 October 2017, composed by the following Professors:

Prof. CHIESA Paolo - Politecnico di Milano;
Prof. SCHERER Viktor - Ruhr-Universität Bochum;
Prof. SÁNCHEZ David - Universidad de Sevilla,

met on November 17, 2017 at 15:00, for the first teleconference meeting.
Each Board member was connected from his workstation.

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

Paolo Chiesa, full professor at the Politecnico di Milano was appointed as Chairman and 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 Board fixed the criteria and the parameters according to which the assessment would be carried out, and established the minimum score below which the candidate shall not be included on the ranking of candidates.

On December 20, 2017 at 10:00, the Selection Board met for the second teleconference meeting and inspected the list of applicants, who are:

- 1) GIUFFRIDA Antonio
- 2) MANENTE Giovanni
- 3) MARTELLI Emanuele
- 4) MONTOMOLI Francesco

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.

The Board examined the documentation submitted by the candidates and discussed their qualifications with reference to the criteria defined in the first telecom meeting of November 17, 2017.

After thoroughly reviewing the list of documents and publications submitted by each candidate, and acknowledging the main features of their scientific and teaching achievements, the Board adjourned the meeting to January 18, 2018 at 15:00 to conclude the comparative evaluation of the four candidates.

On January 18, 2018 at 16:00, the Selection Board met for the third teleconference meeting to conclude the comparative evaluation of the four candidates.

Pursuant to the examination and after adequate evaluation, the Board assigned a score to each of the established criteria and a judgment to each publication submitted by the four candidates. Furthermore, the Board evaluated the knowledge of the foreign 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 their period of activity.

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

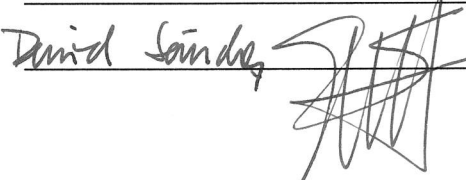
The Board unanimously drew up the ranking of candidates selected to carry out the scientific/teaching functions for which the selection was called, in a number equal to a maximum of five times the number of positions available in the competition (Attachment No. 2 to this final report).

THE BOARD

Prof. Paolo Chiesa (Chairman and Secretary)



Prof. Viktor Scherer (Member)



Prof. David Sánchez (Member)



PUBLIC SELECTION ESTABLISHED WITH DIRECTOR'S DECREE NO. 2017/PRA_ENE15 OF 03/08/2017 PURSUANT TO THE NOTICE PUBLISHED IN THE OFFICIAL GAZETTE NO. 08/09/2017, n.68 FOR 1 POSITION AS ASSOCIATE PROFESSOR FOR THE COMPETITION SECTOR 09/C1 - FLUID MACHINERY, ENERGY SYSTEMS AND POWER GENERATION - SDS ING-IND/09 - ENERGY SYSTEMS AND POWER GENERATION, PURSUANT TO ART. 18 - LAW 240/2010, AT THE POLITECNICO DI MILANO - DEPARTMENT OF ENERGY (PROCEDURE CODE 2017/PRA_ENE15).

ATTACHMENT No. 1 to the FINAL REPORT

CRITERIA	Quality of scientific production	Teaching activity at the university level in Italy or abroad	Scientific responsibility for funded research projects	Consistency with the requested profile	Total
GIUFFIDA Antonio	33	25	5	15	78
MANENTE Giovanni	36	10	3	15	64
MARTELLI Emanuele	37	25	7	14	83
MONTOMOLI Francesco	41	15	10	11	77

CANDIDATE: GIUFFRIDA Antonio

CURRICULUM:

Born in Catania on April 5, 1974, dr. Giuffrida got a Master's Degree cum laude in Mechanical Engineering at University of Catania in 1999, where he was awarded with a prize for his academic achievements (highest exam score). Dr. Giuffrida received a Ph.D. in "Energy Systems and Environment" from the University of Lecce (currently University of Salento) in 2004.

From 2004 to 2008, he worked as contract researcher for different periods at the University of Lecce (1 year altogether) and University of Catania (3 years). He became assistant professor in 2008 at Politecnico di Milano in the sector "ING-IND/09 - Energy Systems and Power generation" and received the tenure in 2011. Dr. Giuffrida was awarded the national scientific qualification for associate professorship for the sector 09/C1 in January 2014.

SUBMITTED PUBLICATIONS:

Publication number	Type/Title of Publication	Judgment
1	A. Giuffrida, R. Lanzafame, "Cam shape and theoretical flow rate in balanced vane pumps", Mechanism and Machine Theory, Volume 40, Issue 3, March 2005, pp. 353-369	Good
2	A. Ficarella, A. Giuffrida, R. Lanzafame, "Common rail injector modified to achieve a modulation of the injection rate", International Journal of Automotive Technology, Volume 6, Number 4, August 2005, pp. 305-314	Good
3	A. Giuffrida, D. Laforgia, "Modelling and simulation of a hydraulic breaker", International Journal of Fluid Power, Volume 6, Number 2, August 2005, pp. 47-56	Very good

4	A. Giuffrida, A. Ficarella, D. Laforgia, "Study of the delivery behaviour of a pump for common rail fuel injection equipment", Proceedings of the Institution of Mechanical Engineers, Part I, Journal of Systems and Control Engineering, Volume 223, Issue 4, June 2009, pp. 521-535	Very good
5	A. Giuffrida, M.C. Romano, G. Lozza, "Thermodynamic assessment of IGCC power plants with hot fuel gas desulfurization", Applied Energy, Volume 87, Issue 11, November 2010, pp. 3374-3383	Very good
6	A. Giuffrida, M.C. Romano, G. Lozza, "Thermodynamic analysis of air-blown gasification for IGCC applications", Applied Energy, Volume 88, Issue 11, November 2011, pp. 3949-3958	Very good
7	A. Giuffrida, D. Bonalumi, G. Lozza, "Amine-based post-combustion CO2 capture in air-blown IGCC systems with cold and hot gas clean-up", Applied Energy, Volume 110, October 2013, pp. 44-54	Good
8	P. Silva, A. Giuffrida, N. Fergnani, E. Macchi, M. Cantù, R. Suffredini, M. Schiavetti, G. Gigliucci, "Performance prediction of a multi-MW wind turbine adopting an advanced hydrostatic transmission", Energy, Volume 64, 1 January 2014, pp. 450-461	Excellent
9	A. Giuffrida, "Modelling the performance of a scroll expander for small organic Rankine cycles when changing the working fluid", Applied Thermal Engineering, Volume 70, Issue 1, 5 September 2014, pp. 1040-1049	Very good
10	P. Chiesa, M. Astolfi, A. Giuffrida, "Blue Energy: Salinity Gradient for Energy Conversion", chapter no. 9 of the book "Process Intensification for Sustainable Energy Conversion", pp. 267-298 Edited by Fausto Gallucci and Martin van Sint Annaland, © 2015 John Wiley & Sons	Good
11	S. Moioli, A. Giuffrida, M.C. Romano, L.A. Pellegrini, G. Lozza, "Assessment of MDEA absorption process for sequential H ₂ S removal and CO ₂ capture in air-blown IGCC plants", Applied Energy, Volume 183, 1 December 2016, pp. 1452-1470	Very good
12	D. Bonalumi, A. Giuffrida, "Investigations of an air-blown integrated gasification combined cycle fired with high-sulphur coal with post-combustion carbon capture by aqueous ammonia", Energy, Volume 117, Part 2, 15 December 2016, pp. 439-449	Very good
13	A. Giuffrida, "Improving the semi-empirical modelling of a single-screw expander for small organic Rankine cycles", Applied Energy, Volume 193, 1 May 2017, pp. 356-368,	Good
14	A. Zaabout, M.C. Romano, S. Cloete, A. Giuffrida, J. Morud, P. Chiesa, S. Amini, "Thermodynamic assessment of the swing adsorption reactor cluster (SARC) concept for post-combustion CO ₂ capture", International Journal of Greenhouse Gas Control, Volume 60, May 2017, pp. 74-92	Good

OVERALL COLLECTIVE JUDGEMENT

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

The research activities of Antonio Giuffrida focused primarily on the following fields, strictly connected to the scientific disciplinary sector ING-IND/09 (Energy Systems and power generation):

- Oil-hydraulic machines and fluid power applications
- Internal combustion engines and related components
- Positive-displacement machines for compressible fluids
- Advanced energy systems based on combustion turbines
- Fossil fuel fired power plants with low CO₂ emissions
- Renewable energy sources and energy efficiency

This research activity spans on a wide range of topics not always related to each other. The candidate gained some experience in experimental activities at the beginning of his career, mainly in the field of fuel injection systems for Diesel engines. Later, he mainly focused on the simulation of energy conversion systems and components included. The scientific production of the candidate shows good skills of analysis



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and modeling energy conversion systems. However, despite some submitted papers received a high number of citations, his scientific production does not substantiate a distinctive capability to develop original research approaches covering all the steps needed to properly frame a scientific or technical issue. The scientific production of the candidate is fully consistent with the topics relevant to sector ING-IND/09 and consists of 60 scientific items distributed as follows:

- 21 papers published in international peer-reviewed journals,
- 1 book chapter,
- 19 papers published in international peer-reviewed conference proceedings,
- 19 papers presented to other conferences.

Author's indexes deduced from the main bibliographic databases accessed on 20-12-2017 are summarized in the table below.

	Scopus	Web of Science
Number of documents	47	28
Number of citations	494	289
Number documents with citations	316	209
Number of citations without self-citations	331	226
h-index	13	8

Dr. Giuffrida is also co-inventor of a patent application on energy recovery from liquefied natural gas re-gasification terminals.

In summary, based on the criteria and the parameters normally adopted at the international level, the quality of the scientific production of the candidate is believed to be good, resulting adequate to the specifications of the call.

DIDACTIC ACTIVITIES CARRIED OUT IN ITALIAN OR FOREIGN UNIVERSITIES OR BODIES:

Dr. Giuffrida presents a significant experience as a lecturer. He has been teaching as responsible lecturer, from academic year 2003-04, a number of courses at the B.Sc level, first at University of Catania and then at Politecnico di Milano. All of them relate to the field of Fluid machines and Energy Systems. The candidate also provides the reports of teaching evaluation for the courses of "Fluid Dynamic Machines and Energy Systems" that he held in the last two academic years. The courses scored a satisfaction degree from the students higher than the School average value. Dr. Giuffrida also gave lectures about gas transport and distribution grid in a master level course organized at the Politecnico di Milano.

He was supervisor of 18 M.Sc. theses at the Politecnico di Milano, and external member of the evaluation committee of Ph.D. candidates in "Energy Systems and Environment" at the University of Salento in 2011 and 2013.

The variety of his teaching assignments the other tasks performed indicate a capability to cover a rather wide spectrum of competences and expertise related to didactic activities in the field of energy system science and technology.

SCIENTIFIC RESPONSIBILITY FOR FUNDED RESEARCH PROJECTS:

The candidate has established a long list of collaborations with several industrial companies (Tecna, Bosch, SNAM Rete Gas, Eni, Enel, Saipem) and research institutions (ENEA and RSE) in the frame of contracts awarded to the universities where he worked. However, it does not appear that he acted as responsible or principal investigator of any of these contracts.

CONSISTENCY WITH THE REQUIRED PROFILE:

On the basis of the teaching activity carried out in the field of the Energy Systems and the scientific activity, the candidate fully responds to the profile requested by the current selection.

SCRUTINY OF THE DEGREE OF KNOWLEDGE OF THE ENGLISH LANGUAGE:

From the analysis of the documents and the publications submitted, it is evident that the candidate has a satisfactory knowledge of the English language.



CANDIDATE: MANENTE Giovanni

CURRICULUM:

Born in Dolo (Venice) on October 19, 1982, dr. Manente received B.Sc (2004) and M.Sc degree (cum laude, 2007) in Mechanical Engineering, and PhD (2011) in Energetics, all from the University of Padova. Since 2011, he is post-doc researcher at the Department of Industrial Engineering, University of Padova.

During his PhD studies, Giovanni Manente carried out a 12 month Internship at ENEL Research Center in Pisa and spent a visiting period from January to July 2010 at the Massachusetts Institute of Technology (USA), where he actively collaborated with the "Geothermal Research Group". This activity was summarized in a conference paper presented at the IMECE conference in Denver (CO) that allowed him to receive the ASME "2012 Best Student Paper Award".

Dr. Manente got the qualification to apply for open positions as Associate Professor in Italy (sector 09/C1) in February 2017.

SUBMITTED PUBLICATIONS:

Publication number	Type/Title of Publication	Judgment
1	Da Lio L., Manente G., Lazzaretto A., 2017, "A mean-line model to predict the design efficiency of radial inflow turbines in organic Rankine cycle (ORC) systems", Applied Energy, vol. 205, pp. 187-209	Very good
2	Manente G., Lazzaretto A., Bonamico E., 2017, "Design guidelines for the choice between single and dual pressure layouts in organic Rankine cycle (ORC) systems", Energy, vol. 123, pp. 413-431.	Very good
3	Manente G., Da Lio L., Lazzaretto A., 2016, "Influence of axial turbine efficiency maps on the performance of subcritical and supercritical Organic Rankine Cycle systems", Energy, vol. 107, pp. 761-772.	Very good
4	Manente G., Rech S., Lazzaretto A., 2016, "Optimum choice and placement of concentrating solar power technologies in integrated solar combined cycle systems", Renewable Energy, vol. 96, pp. 172-189.	Very good
5	Da Lio L., Manente G., Lazzaretto A., 2016, "Predicting the optimum design of single stage axial expanders in ORC systems: is there a single efficiency map for different working fluids?", Applied Energy, vol. 167, pp. 44-58.	Very good
6	Manente G., 2016, "High performance integrated solar combined cycles with minimum modifications to the combined cycle power plant design", Energy Conversion and Management, vol. 111, pp. 186-197.	Very good
7	Vivian J., Manente G., Lazzaretto A., 2015, "A general framework to select working fluid and configuration of ORCs for low-to-medium temperature heat sources", Applied Energy, vol. 156, pp. 727-746.	Very good
8	Soffiato M., Frangopoulos C.A., Manente G., Rech S., Lazzaretto A., 2015, "Design optimization of ORC systems for waste heat recovery on board a LNG carrier", Energy Conversion and Management, vol. 92, pp. 523-534.	Very good
9	Da Lio L., Manente G., Lazzaretto A., 2014, "New efficiency charts for the optimum design of axial flow turbines for organic Rankine cycles", Energy, vol. 77, pp. 447-459.	Very good
10	Manente G., Lazzaretto A., 2014, "Innovative biomass to power conversion systems based on cascaded supercritical CO ₂ Brayton cycles", Biomass and Bioenergy, vol. 69, pp. 155-168.	Good
11	Toffolo A., Lazzaretto A., Manente G., Paci M., 2014, "A multi-criteria approach for the optimal selection of working fluid and design parameters in Organic Rankine Cycle systems", Applied Energy, vol. 121, pp. 219-232.	Excellent
12	Manente G., Toffolo A., Lazzaretto A., Paci M., 2013, "An Organic Rankine Cycle off design model for the search of the optimal control strategy", Energy, vol. 58, pp. 97-106.	Excellent

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13	Lazzaretto A., Manente G., 2009, "Analysis of Superimposed Elementary Thermodynamic Cycles: from the Brayton-Joule to Advanced Mixed (Auto-Combined) Cycles", International Journal of Thermodynamics, vol. 12, pp. 123-130.	Good
14	Manente G., 2011, "Analysis and development of innovative binary cycle power plants for geothermal and combined geo-solar thermal resources", PhD thesis.	Very good

OVERALL COLLECTIVE JUDGEMENT

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

The research activities of Giovanni Manente focused primarily on fields strictly connected to the scientific disciplinary sector ING-IND/09 (Energy Systems and power generation):

- Thermodynamic cycles for geothermal applications and development of hybrid geothermal-solar power plants
- Design of turbines for Organic Rankine Cycle systems
- Fossil-fueled power plants with hydrogen production and CO₂ capture
- Integration of solar energy into natural gas combined cycle power plants
- Innovative biomass-fired power plants

The publications presented by the candidate are completely encompassed in the subjects relevant to sector ING-IND/09. Most of them relate to the simulation and analysis of Organic Rankine Cycle power plants, including the performance prediction of the turbines used in this context. They show a remarkable degree of originality and represent a significant research path for the reference sector. From the continuity of his scientific production, it is also evident a significant contribution in the co-authored papers submitted for this call.

The scientific production of the candidate proves a solid knowledge of commercial simulation tools for energy systems, together with the capability of developing new codes on his own. Despite of a relatively young academic age, his scientific production consists of 32 scientific documents (some of which received a significant number of citations in few years) distributed as follows:

- 17 papers published in international peer-reviewed journals,
- 15 papers published in international conference proceedings.

Author's indexes deduced from the main bibliographic databases accessed on 20-12-2017 are summarized in the table below.

	Scopus	Web of Science
Number of documents	30	16
Number of citations	334	245
Number documents with citations	271	205
Number of citations without self-citations	307	227
h-index	10	7

Overall, the scientific work of the candidate is very good, certainly adequate to the specifications of the call.

DIDACTIC ACTIVITIES CARRIED OUT IN ITALIAN OR FOREIGN UNIVERSITIES OR BODIES:

Dr. Manente is adjunct professor at the Department of Industrial Engineering of the University of Padova. Since academic year 2011-12, he teaches three credits (out of nine) of the course "Power Plant Technology" (responsible lecturer prof. A. Lazzaretto) for the B.Sc degree in Energy Engineering at the University of Padova.

The candidate also has teaching experience at Lund University (Sweden) and University of Ljubljana (Slovenia) in the frame of the Erasmus+ Staff Mobility for Teaching program.

He served as supervisor of several final reports for the B.Sc degree in Energy Engineering, and co-supervisor of eleven Master theses at the University of Padova.

From the analysis of his teaching activity, it appears that the applicant's experience does not completely respond to the requirements of the current selection.

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SCIENTIFIC RESPONSIBILITY FOR FUNDED RESEARCH PROJECTS:

The candidate reports his involvement in project project funded by the Veneto Region and in a series of research collaborations with Enel in the frame of different contracts awarded to University of Padova. However, it does not appear that he acted as responsible or principal investigator of any of these contracts.

CONSISTENCY WITH THE REQUIRED PROFILE:

On the basis of the teaching activity carried out in the field of the Energy Systems and the scientific activity, the candidate fully responds to the profile requested by the current selection.

SCRUTINY OF THE DEGREE OF KNOWLEDGE OF THE ENGLISH LANGUAGE:

From the analysis of the documents and the publications submitted, it is evident that the candidate has a good knowledge of the English language.

CANDIDATE: MARTELLI Emanuele

CURRICULUM:

Emanuele Martelli was born in S. Benedetto del Tronto (Ascoli Piceno) on February 20, 1982. He received B.Sc (cum laude 2004) and M.Sc degree (cum laude, 2006) in Mechanical Engineering, from Politecnico di Milano where he was awarded with some prizes for his academic achievements (highest exam score). In 2010, he got a PhD (cum laude) in Energy Engineering, always from Politecnico di Milano. During his PhD, he was visiting student at Princeton University (USA).

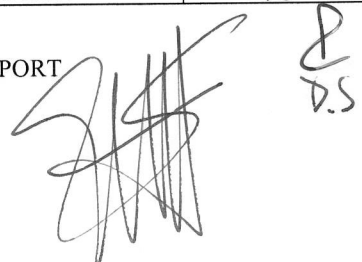
In the period 2010-2011 he worked as contract researcher at Politecnico di Milano, where he became assistant professor in the sector "ING-IND/09 - Energy Systems and Power generation" in December 2011 (tenure received in 2014).

In 2014 and 2016, Dr. Martelli spent two 3-month periods as visiting professor respectively at EPFL (Ecole Polytechnique Federale de Lausanne, Lausanne – CH) and ETH (Swiss Federal Institute of Technology, Zurich – CH), for collaborative research activities about optimization of energy systems. During his career, the applicant participated to the scientific committee of two European conferences and held a semi-plenary lecture in the final conference organized in the frame of a COST action on optimization of energy networks. He was also invited for seminars in several European universities and research institutions.

Dr. Martelli was awarded the national scientific qualification for associate professorship for the sector 09/C1 in December 2014.

SUBMITTED PUBLICATIONS:

Publication number	Type/Title of Publication	Judgment
1	Martelli E., Kreutz T., Carbo M., Consonni S., Jansen D.: Shell coal IGCCS with carbon capture: Conventional gas quench vs. innovative configurations. Applied Energy Vol. 88 (11), pp. 3978-3989, November 2011	Very good
2	Martelli E., Amaldi E., Consonni S.: Numerical optimization of heat recovery steam cycles: Mathematical model, two-stage algorithm and applications. Computers and Chemical Engineering Vol. 35(12), pp. 2799-2823, December 2011	Very good
3	Martelli E., Nord L., Bolland O.: Design criteria and optimization of heat recovery steam cycles for integrated reforming combined cycles with CO ₂ capture. Applied Energy Vol. 92, pp. 255-268, April 2012	Excellent
4	Gazzani M., Chiesa P., Martelli E., Sigali S., Brunetti I.: Using Hydrogen as Gas Turbine Fuel: Premixed Versus Diffusive Combustors. Journal of Engineering for Gas Turbines and Power, 136(5), pp. 051504-1 - 051504-10, January 2014	Excellent
5	Bischi A., Taccari L.; Martelli E., Amaldi E., Manzolini G., Silva P., Campanari S., Macchi E.: A detailed optimization model for combined cooling, heat and power system operation planning. Energy, Vol. 74, pp. 12-26, September 2014	Very good



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6	Lanzini A., Kreutz T., Martelli E., Santarelli M.: Energy and economic performance of novel integrated gasifier fuel cell (IGFC) cycles with carbon capture. International Journal of Greenhouse Gas Control, 26, pp. 169-184. July 2014	Very good
7	Gatti M., Martelli E., Marechal F., Consonni S.: Review, Modelling, Heat Integration, and Improved Schemes of Rectisol-based processes for CO ₂ capture. Applied Thermal Engineering, Vol. 70(2), pp. 1123-1140, September 2014	Excellent
8	Nord L., Martelli E., Bolland O.: Weight and power optimization of steam bottoming cycle for offshore oil and gas installations. Energy, vol. 76, pp. 891-898, November 2014	Good
9	Martelli E., Capra F., Consonni S.: Numerical Optimization of Combined Heat and Power Organic Rankine Cycles - Part A: Design Optimization. Energy Vol. 90 Part 1, pp.310-328, October 2015	Very good
10	Capra F., Martelli E.: Numerical Optimization of combined heat and power Organic Rankine Cycles – Part B: simultaneous design & part-load optimization. Energy Vol. 90 Part 1, pp. 329 Energy, pp. 329-343, October 2015	Very good
11	Scaccabarozzi R., Gatti M., Martelli E.: Thermodynamic analysis and numerical optimization of the NET Power oxy-combustion cycle. Applied Energy Vol. 178, pp. 505-526. September 2016	Excellent
12	Lazzaroni, E. F., Elsholkami, M., Arbiv, I., Martelli, E., Elkamel, A., Fowler, M.: Energy infrastructure modeling for the oil sands industry: Current situation. Applied Energy, vol. 181, pp. 435-445, November 2016	Very good
13	Elsido C., Bischi A., Silva P., Martelli E.: Two-stage MINLP algorithm for the optimal synthesis and design of networks of CHP units. Energy, Vol. 121, pp. 403-426, February 2017	Good
14	Martelli E., Elsido C., Mian A., Marechal F.: MINLP Model and two-stage Algorithm for the Simultaneous Synthesis of Heat Exchanger Networks, Utility Systems and Heat Recovery Cycles. Computers and Chemical Engineering (article accepted on January the 24th 2017 and currently "in press")	Good

OVERALL COLLECTIVE JUDGEMENT

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

Research activities of Emanuele Martelli have focused primarily on fields mostly connected to the scientific disciplinary sector ING-IND/09 (Energy Systems and power generation):

- Methods and algorithms for energy systems optimization
- Heat integration and heat recovery steam cycles for advanced power plants
- CO₂ capture technologies
- Organic Rankine Cycles
- Design and operation of energy hubs and Combined Heat and Power systems
- Energy efficiency in oil extraction from Alberta's tar sands

The distinctive trait of the candidate's research activity is the optimization of energy systems. Scientific production of dr. Martelli proves that he was able to originate an innovative research line, starting from the development of algorithms and mathematical tools for the solution of optimization problems, and then applying these procedures for design improvement and efficient operations of different classes of energy systems. These achievements are even more remarkable considering that they have been attained in a relatively short period.

The publications presented by the candidate exhibit good quality and adequate publishing position. They prove that the candidate has an in-depth acquaintance with advanced simulation software for energy systems, together with the capability of developing new modelization tools on his own.

Overall, the scientific production of the candidate is consistent with the topics relevant to sector ING-IND/09 and it consists of 55 items distributed as follows:

- 21 papers published in international peer-reviewed journals,
- 1 monograph and 2 book chapter,

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- 25 papers published in international peer-reviewed conference proceedings,
- 6 papers presented to other conferences.

Author's indexes deduced from the main bibliographic databases accessed on 20-12-2017 are summarized in the table below.

	Scopus	Web of Science
Number of documents	52	36
Number of citations	406	328
Number documents with citations	326	270
Number of citations without self-citations	306	267
h-index	11	10

Dr. Martelli also co-authored two patents on phase-change processes for CO₂ and H₂S separation from syngas mixtures.

Overall, based on the criteria and the parameters normally adopted at the international level, the scientific work of the candidate is very good, with evident innovative contributions, certainly adequate to the specifications of the call.

DIDACTIC ACTIVITIES CARRIED OUT IN ITALIAN OR FOREIGN UNIVERSITIES OR BODIES:

From academic year 2011-12, Dr. Martelli has been teaching as responsible lecturer, at Politecnico di Milano, a number of courses at the M.Sc level in mechanical and energy engineering, all related to the field of Energy Systems. He served as lecturer for a course of an honor program jointly established by Politecnico di Milano and Politecnico di Torino. He also served as supervisor of more than 10 master students and 5 PhD students at Politecnico di Milano.

From the above notes, it is evident that the candidate has matured a significant capability in teaching courses in the fields relevant to this call, and his experience adequately responds to the requirements of this selection.

SCIENTIFIC RESPONSIBILITY FOR FUNDED RESEARCH PROJECTS:

The candidate has carried out a significant activity as member of the research teams funded through peer-reviewed calls or by contracts with industrial companies (among which BP, Eni, Enel, AMEC-Foster Wheeler) and public organizations. Dr. Martelli has played the role of principal investigator for a regional funded project about optimization of energy systems for urban districts, and for a sub-contract awarded by Princeton University to Politecnico di Milano in the frame of project funded by the US Department of Energy about synthesis of jet fuel with CO₂ capture.

The overall assessment of the candidate's activity in funded programs indicates the attainment of a fair capability of promoting and managing research projects, that partly meets the requirement of this selection procedure.

CONSISTENCY WITH THE REQUIRED PROFILE:

The teaching experience in the field of the Energy Systems is fully coherent with the profile requested by the current selection. On the other hand, some aspects of his research activity seem more relevant to other disciplines as applied mathematics or computer science and do not fully responds to the requirements of this call.

SCRUTINY OF THE DEGREE OF KNOWLEDGE OF THE ENGLISH LANGUAGE:

From the analysis of the documents and the publications submitted, it is evident that the candidate has a satisfactory knowledge of the English language.

CANDIDATE: MONTOMOLI Francesco

CURRICULUM:

Dr. Montomoli was born in Firenze on September 1, 1975. He got a Master's Degree in Mechanical Engineering in 2000 and a PhD in Energy Engineering in 2004, both from University of Florence. Since then, he has held a number of different offices as listed below:

- 2004: Visiting scholar at Texas AM University, Turbine Heat Transfer Lab, TX, USA
- 2005-2006: Design Engineer, General Electric Oil&Gas, R&D group, Firenze, Italy
- 2006-2009: Research Associate, Whittle Laboratory, Univ. of Cambridge, UK
- 2009-2011: Senior Fellow-College Lecturer, Univ. of Cambridge, UK, Girton College
- 2011-2012: Research Professor in Applied Math and Leader of CFD Team, Basque Centre for Applied Math, Bilbao, Spain
- 2012-2014: Senior Lecturer in Computational Fluid Dynamics, Univ. of Surrey, UK
- July 2014-now: Senior Lecturer, head of the UQlab, Aeronautics Dept., Imperial College of London, UK. Tenure obtained on 27/11/2014.

During his career, dr. Montomoli served as expert in different European review panels and was invited as speaker in several events organized by industrial companies and academic institutions.

Dr. Montomoli has passed the national scientific qualification for associate professorship for the sector 09/A1 (Aeronautical and aerospace engineering and naval architecture) in February 2014, and for associate and full professorship for the sector 09/C1 (Fluid machinery, energy systems and power generation) respectively in January 2014 and March 2017.

SUBMITTED PUBLICATIONS:

Publication number	Type/Title of Publication	Judgment
1	Montomoli F, D. Amirante, N Hills, S. Shapahr, M. Massini, "Uncertainty Quantification, Rare Events, and Mission Optimization: Stochastic Variations of Metal Temperature During a Transient", Journal of Gas Turbine and Power, April 2015, Vol. 137.	Very good
2	Montomoli F, D'Ammaro A., Uchida S. "Numerical and Experimental Investigation of a New Film Cooling Geometry with High P/D Ratio", J. of Heat and Mass Transfer, vol. 66 (2013), pp. 366–375.	Excellent
3	D'Ammaro A, Montomoli F.: "Uncertainty Quantification and Film Cooling", Journal of Computer and Fluids, vol. 71 (2013), pp. 320–326	Very good
4	Montomoli F., D'Ammaro A, Uchida S.: "Uncertainty Quantification and Conjugate Heat Transfer: a Stochastic Analysis", Journal of Turbomachinery, May 2013, Vol. 135.	Excellent
5	Montomoli F., E. Naylor, H.P. Hodson, L. Lapworth "Unsteady effects in axial compressors: a multistage simulation", Journal of Propulsion and Power, 2013.	Very good
6	Montomoli F., Massini M, Salvadori S., Martelli F: "Geometrical Uncertainty and Film Cooling: Fillet Radii", Journal of Turbomachinery, January 2012, Vol. 134.	Excellent
7	Montomoli F, Massini M., H. Yang, J.C. Han: "The Benefit of High-Conductivity Nozzle Material" International Journal of Heat and Fluid Flow, vol. 34 (2012), pp. 107–116	Excellent
8	Salvadori S, Montomoli F, Chana K, Martelli F, Povey T., Qureshi I., "Analysis of the Effect of a Non-uniform Inlet Profile on Heat Transfer and Fluid Flow in Turbine Stages" Journal of Turbomachinery, January 2012, Vol. 134.	Excellent
9	Montomoli F., Hodson, H.P., Haselbach, F.: "Effect of roughness and unsteadiness on the performance of a new LPT blade at low Reynolds numbers", J. of Turbomachinery, July 2010, Vol. 132, pp. 031018-1 to 9.	Excellent
10	Montomoli F., Eastwood S.: "Implementation of Synthetic Turbulence Inlet for Turbomachinery LES": International Journal of Computer and Fluids, Elsevier, vol. 46 (2011), pp. 369–374	Very good
11	Montomoli F, M. Massini, S. Salvadori: "Geometrical Uncertainty in Turbomachinery": International Journal of Computer and Fluids, Elsevier, vol. 46 (2011), pp. 362–368	Very good
12	Montomoli F., Adami P., Martelli F.: "A finite volume method for the conjugate heat transfer in film cooling devices", Journal of Power and Energy, 2009.	Very good

Handwritten signature and initials, including the letters 'D.S.' and a stylized signature.

13	Pietropaoli M, Ahlfeld R, Montomoli F, Ciani A, D'Ercole M, Design for Additive Manufacturing: Internal Channel Optimization, Journal of Engineering for Gas Turbines and Power, October 2017, Vol. 139, pp. 102101-1 to 8.	Excellent
14	Casari N, Pinelli M, Suman A, Di Mare L, Montomoli F, AN ENERGY BASED FOULING MODEL FOR GAS TURBINES: EBFOG, Journal of Turbomachinery, FEBRUARY 2017, Vol. 139 / 021002-1 to 8	Excellent

OVERALL COLLECTIVE JUDGEMENT

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

The research activity of Francesco Montomoli mainly relates to the field of gas turbine engines. He faced this topic from multiple perspectives, looking at the performance assessment of cooling circuits, experimental and CFD analysis of turbomachines and, notably, evaluation of the impact of different unpredictable events (like manufacturing tolerances or geometrical modifications occurring during operations, unexpected operating conditions, etc.) on the engine performance according to the "uncertainty quantification" approach.

The candidate chose to submit only the first page of 11 publications and only 3 full text. However, the board decided to evaluate his scientific production based on the available information from the Scopus database. They show a remarkable degree of originality and set a structured approach for a wide range of different issues occurring in design and operation of gas turbine engines. Overall, the scientific work of the candidate is excellent, with evident innovative contributions, pointing out a high-level technical skills and outstanding management capabilities and maturity.

Overall, the scientific production of the candidate is fundamentally consistent with the topics relevant to sector ING-IND/09 and it consists of 58 items distributed as follows:

- 30 papers published in international peer-reviewed journals,
- 25 papers published in international peer-reviewed conference proceedings,
- 12 papers presented to other conferences,
- 1 book

Author's indexes deduced from the main bibliographic databases accessed on 20-12-2017 are summarized in the table below.

	Scopus	Web of Science
Number of documents	51	60
Number of citations	407	187
Number documents with citations	306	148
Number of citations without self-citations	322	134
h-index	13	8

Dr. Montomoli is also the sole inventor of a patent on a novel film cooling geometry.

In summary, based on the criteria and the parameters normally adopted at the international level, the quality of the scientific production of dr. Montomoli is believed to be excellent, certainly adequate to the specifications of the current call.

DIDACTIC ACTIVITIES CARRIED OUT IN ITALIAN OR FOREIGN UNIVERSITIES OR BODIES:

Francesco Montomoli carried out his teaching activity mainly in England where he served as lecturer and senior lecturer in different universities. His CV does not report the detail of his teaching experience, but it generally states of assignments in Mathematics, Computational Fluid Dynamics, and Compressible Flows. He also served as supervisor of seven PhD students and co-supervisor of some others. He also participated as external member in the PhD thesis evaluation committee of three Italian and British Universities. The position held and the reputation of his university affiliation support the candidate's teaching quality, but the documented experience and the topics of courses he taught, do not entirely comply with the requirements of the current selection.

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SCIENTIFIC RESPONSIBILITY FOR FUNDED RESEARCH PROJECTS:

The candidate has participated to a number of wide-ranging research projects funded through peer-reviewed calls, as well as to a long list of research contracts with industrial companies (including Rolls Royce, General Electric, Mitsubishi Heavy Industries, Airbus) and public organizations. In many instances, dr. Montomoli has played the role of responsible, principal investigator or team leader. These activities cover a wide range of topics at the forefront of research in the gas turbine industry. Overall, the experience gained in connection to funded research projects indicates the full achievement of the capability of proposing, pursuing and managing important research projects at international level, it and completely fits the requirements of the present call.

CONSISTENCY WITH THE REQUIRED PROFILE:

From the analysis of the CV of dr. Montonoli, it is evident that the teaching activities of the candidate do not fully comply with the requirements of the current selection. Mathematics cannot be included in the disciplines interested in the present call while Compressible Flows is a subject only partially related to the ING-IND/09 sector. The research activity of the candidate, aimed at the study of single issues or components of gas turbine engines, is overall related to the requirements of the current selection procedure. However some aspects of his scientific production seem more relevant to aerodynamics and propulsion (to such an extent that he passed the national scientific qualification for associate professorship for the sector 09/A1) or applied mathematics and they do not fully responds to the requirements of this call.

SCRUTINY OF THE DEGREE OF KNOWLEDGE OF THE ENGLISH LANGUAGE:

The publications and the scientific documents authored by the candidate make clear that he has a very good knowledge of the English language, evidently appropriate to meet the specifications of the call being addressed by the Board.

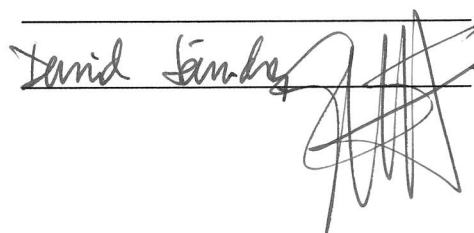
THE BOARD

Prof. Paolo Chiesa (Chairman and Secretary)



Prof. Viktor Scherer (Member)

Prof. David Sánchez (Member)





PUBLIC SELECTION ESTABLISHED WITH DIRECTOR'S DECREE NO. 2017/PRA_ENE15 OF 03/08/2017 PURSUANT TO THE NOTICE PUBLISHED IN THE OFFICIAL GAZETTE NO. 08/09/2017, n.68 FOR 1 POSITION AS ASSOCIATE PROFESSOR FOR THE COMPETITION SECTOR 09/C1 - FLUID MACHINERY, ENERGY SYSTEMS AND POWER GENERATION - SDS ING-IND/09 - ENERGY SYSTEMS AND POWER GENERATION, PURSUANT TO ART. 18 - LAW 240/2010, AT THE POLITECNICO DI MILANO - DEPARTMENT OF ENERGY (PROCEDURE CODE 2017/PRA_ENE15).

ATTACHMENT No. 2 to the FINAL REPORT

MERIT RANKING

SURNAME AND NAME	Overall score
MARTELLI EMANUELE	83
GIUFFRIDA ANTONIO	78
MONTOMOLI FRANCESCO	77

Milan, January 18, 2018

THE BOARD

Prof. Paolo Chiesa (Chairman and Secretary)

Prof. Viktor Scherer (Member)

Prof. David Sánchez (Member)

Paolo Chiesa

David Sánchez



PUBLIC SELECTION ESTABLISHED WITH DIRECTOR'S DECREE NO. 2017/PRA_ENE15 OF 03/08/2017 PURSUANT TO THE NOTICE PUBLISHED IN THE OFFICIAL GAZETTE NO. 08/09/2017, n.68 FOR 1 POSITION AS ASSOCIATE PROFESSOR FOR THE COMPETITION SECTOR 09/C1 - FLUID MACHINERY, ENERGY SYSTEMS AND POWER GENERATION - SDS ING-IND/09 - ENERGY SYSTEMS AND POWER GENERATION, PURSUANT TO ART. 18 - LAW 240/2010, AT THE POLITECNICO DI MILANO - DEPARTMENT OF ENERGY (PROCEDURE CODE 2017/PRA_ENE15).

FINAL REPORT

The Selection Board, appointed with RD Index No. 6071 ref. No. 92842 of 10 October 2017, composed by the following Professors:

Prof. CHIESA Paolo - Politecnico di Milano;
Prof. SCHERER Viktor - Ruhr-Universität Bochum;
Prof. SÁNCHEZ David - Universidad de Sevilla,

met on November 17, 2017 at 15:00, for the first teleconference meeting.
Each Board member was connected from his workstation.

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

Paolo Chiesa, full professor at the Politecnico di Milano was appointed as Chairman and 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 Board fixed the criteria and the parameters according to which the assessment would be carried out, and established the minimum score below which the candidate shall not be included on the ranking of candidates.

On December 20, 2017 at 10:00, the Selection Board met for the second teleconference meeting and inspected the list of applicants, who are:

- 1) GIUFFRIDA Antonio
- 2) MANENTE Giovanni
- 3) MARTELLI Emanuele
- 4) MONTOMOLI Francesco

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.

The Board examined the documentation submitted by the candidates and discussed their qualifications with reference to the criteria defined in the first telecom meeting of November 17, 2017.

After thoroughly reviewing the list of documents and publications submitted by each candidate, and acknowledging the main features of their scientific and teaching achievements, the Board adjourned the meeting to January 18, 2018 at 15:00 to conclude the comparative evaluation of the four candidates.

On January 18, 2018 at 16:00, the Selection Board met for the third teleconference meeting to conclude the comparative evaluation of the four candidates.

Pursuant to the examination and after adequate evaluation, the Board assigned a score to each of the established criteria and a judgment to each publication submitted by the four candidates. Furthermore, the Board evaluated the knowledge of the foreign 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 their period of activity.

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

The Board unanimously drew up the 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 BOARD

Prof. Paolo Chiesa (Chairman and Secretary)

Prof. Viktor Scherer (Member)

Prof. David Sánchez (Member)

Paolo Chiesa



POLITECNICO MILANO 1863

PUBLIC SELECTION ESTABLISHED WITH DIRECTOR'S DECREE NO. 2017/PRA_ENE15 OF 03/08/2017 PURSUANT TO THE NOTICE PUBLISHED IN THE OFFICIAL GAZETTE NO. 08/09/2017, n.68 FOR 1 POSITION AS ASSOCIATE PROFESSOR FOR THE COMPETITION SECTOR 09/C1 - FLUID MACHINERY, ENERGY SYSTEMS AND POWER GENERATION - SDS ING-IND/09 - ENERGY SYSTEMS AND POWER GENERATION, PURSUANT TO ART. 18 - LAW 240/2010, AT THE POLITECNICO DI MILANO - DEPARTMENT OF ENERGY (PROCEDURE CODE 2017/PRA_ENE15).

ATTACHMENT No. 1 to the FINAL REPORT

CRITERIA	Quality of scientific production	Teaching activity at the university level in Italy or abroad	Scientific responsibility for funded research projects	Consistency with the requested profile	Total
GIUFFIDA Antonio	33	25	5	15	78
MANENTE Giovanni	36	10	3	15	64
MARTELLI Emanuele	37	25	7	14	83
MONTOMOLI Francesco	41	15	10	11	77

CANDIDATE: GIUFFRIDA Antonio

CURRICULUM:

Born in Catania on April 5, 1974, dr. Giuffrida got a Master's Degree cum laude in Mechanical Engineering at University of Catania in 1999, where he was awarded with a prize for his academic achievements (highest exam score). Dr. Giuffrida received a Ph.D. in "Energy Systems and Environment" from the University of Lecce (currently University of Salento) in 2004.

From 2004 to 2008, he worked as contract researcher for different periods at the University of Lecce (1 year altogether) and University of Catania (3 years). He became assistant professor in 2008 at Politecnico di Milano in the sector "ING-IND/09 - Energy Systems and Power generation" and received the tenure in 2011. Dr. Giuffrida was awarded the national scientific qualification for associate professorship for the sector 09/C1 in January 2014.

SUBMITTED PUBLICATIONS:

Publication number	Type/Title of Publication	Judgment
1	A. Giuffrida, R. Lanzafame, "Cam shape and theoretical flow rate in balanced vane pumps", Mechanism and Machine Theory, Volume 40, Issue 3, March 2005, pp. 353-369	Good
2	A. Ficarella, A. Giuffrida, R. Lanzafame, "Common rail injector modified to achieve a modulation of the injection rate", International Journal of Automotive Technology, Volume 6, Number 4, August 2005, pp. 305-314	Good
3	A. Giuffrida, D. Laforgia, "Modelling and simulation of a hydraulic breaker", International Journal of Fluid Power, Volume 6, Number 2, August 2005, pp. 47-56	Very good

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v.s.

4	A. Giuffrida, A. Ficarella, D. Laforgia, "Study of the delivery behaviour of a pump for common rail fuel injection equipment", Proceedings of the Institution of Mechanical Engineers, Part I, Journal of Systems and Control Engineering, Volume 223, Issue 4, June 2009, pp. 521-535	Very good
5	A. Giuffrida, M.C. Romano, G. Lozza, "Thermodynamic assessment of IGCC power plants with hot fuel gas desulfurization", Applied Energy, Volume 87, Issue 11, November 2010, pp. 3374-3383	Very good
6	A. Giuffrida, M.C. Romano, G. Lozza, "Thermodynamic analysis of air-blown gasification for IGCC applications", Applied Energy, Volume 88, Issue 11, November 2011, pp. 3949-3958	Very good
7	A. Giuffrida, D. Bonalumi, G. Lozza, "Amine-based post-combustion CO2 capture in air-blown IGCC systems with cold and hot gas clean-up", Applied Energy, Volume 110, October 2013, pp. 44-54	Good
8	P. Silva, A. Giuffrida, N. Fergnani, E. Macchi, M. Cantù, R. Suffredini, M. Schiavetti, G. Gigliucci, "Performance prediction of a multi-MW wind turbine adopting an advanced hydrostatic transmission", Energy, Volume 64, 1 January 2014, pp. 450-461	Excellent
9	A. Giuffrida, "Modelling the performance of a scroll expander for small organic Rankine cycles when changing the working fluid", Applied Thermal Engineering, Volume 70, Issue 1, 5 September 2014, pp. 1040-1049	Very good
10	P. Chiesa, M. Astolfi, A. Giuffrida, "Blue Energy: Salinity Gradient for Energy Conversion", chapter no. 9 of the book "Process Intensification for Sustainable Energy Conversion", pp. 267-298 Edited by Fausto Gallucci and Martin van Sint Annaland, © 2015 John Wiley & Sons	Good
11	S. Moioli, A. Giuffrida, M.C. Romano, L.A. Pellegrini, G. Lozza, "Assessment of MDEA absorption process for sequential H2S removal and CO2 capture in air-blown IGCC plants", Applied Energy, Volume 183, 1 December 2016, pp. 1452-1470	Very good
12	D. Bonalumi, A. Giuffrida, "Investigations of an air-blown integrated gasification combined cycle fired with high-sulphur coal with post-combustion carbon capture by aqueous ammonia", Energy, Volume 117, Part 2, 15 December 2016, pp. 439-449	Very good
13	A. Giuffrida, "Improving the semi-empirical modelling of a single-screw expander for small organic Rankine cycles", Applied Energy, Volume 193, 1 May 2017, pp. 356-368,	Good
14	A. Zaabout, M.C. Romano, S. Cloete, A. Giuffrida, J. Morud, P. Chiesa, S. Amini, "Thermodynamic assessment of the swing adsorption reactor cluster (SARC) concept for post-combustion CO2 capture", International Journal of Greenhouse Gas Control, Volume 60, May 2017, pp. 74-92	Good

OVERALL COLLECTIVE JUDGEMENT

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

The research activities of Antonio Giuffrida focused primarily on the following fields, strictly connected to the scientific disciplinary sector ING-IND/09 (Energy Systems and power generation):

- Oil-hydraulic machines and fluid power applications
- Internal combustion engines and related components
- Positive-displacement machines for compressible fluids
- Advanced energy systems based on combustion turbines
- Fossil fuel fired power plants with low CO₂ emissions
- Renewable energy sources and energy efficiency

This research activity spans on a wide range of topics not always related to each other. The candidate gained some experience in experimental activities at the beginning of his career, mainly in the field of fuel injection systems for Diesel engines. Later, he mainly focused on the simulation of energy conversion systems and components included. The scientific production of the candidate shows good skills of analysis

and modeling energy conversion systems. However, despite some submitted papers received a high number of citations, his scientific production does not substantiate a distinctive capability to develop original research approaches covering all the steps needed to properly frame a scientific or technical issue. The scientific production of the candidate is fully consistent with the topics relevant to sector ING-IND/09 and consists of 60 scientific items distributed as follows:

- 21 papers published in international peer-reviewed journals,
- 1 book chapter,
- 19 papers published in international peer-reviewed conference proceedings,
- 19 papers presented to other conferences.

Author's indexes deduced from the main bibliographic databases accessed on 20-12-2017 are summarized in the table below.

	Scopus	Web of Science
Number of documents	47	28
Number of citations	494	289
Number documents with citations	316	209
Number of citations without self-citations	331	226
h-index	13	8

Dr. Giuffrida is also co-inventor of a patent application on energy recovery from liquefied natural gas re-gasification terminals.

In summary, based on the criteria and the parameters normally adopted at the international level, the quality of the scientific production of the candidate is believed to be good, resulting adequate to the specifications of the call.

DIDACTIC ACTIVITIES CARRIED OUT IN ITALIAN OR FOREIGN UNIVERSITIES OR BODIES:

Dr. Giuffrida presents a significant experience as a lecturer. He has been teaching as responsible lecturer, from academic year 2003-04, a number of courses at the B.Sc level, first at University of Catania and then at Politecnico di Milano. All of them relate to the field of Fluid machines and Energy Systems. The candidate also provides the reports of teaching evaluation for the courses of "Fluid Dynamic Machines and Energy Systems" that he held in the last two academic years. The courses scored a satisfaction degree from the students higher than the School average value. Dr. Giuffrida also gave lectures about gas transport and distribution grid in a master level course organized at the Politecnico di Milano.

He was supervisor of 18 M.Sc. theses at the Politecnico di Milano, and external member of the evaluation committee of Ph.D. candidates in "Energy Systems and Environment" at the University of Salento in 2011 and 2013.

The variety of his teaching assignments the other tasks performed indicate a capability to cover a rather wide spectrum of competences and expertise related to didactic activities in the field of energy system science and technology.

SCIENTIFIC RESPONSIBILITY FOR FUNDED RESEARCH PROJECTS:

The candidate has established a long list of collaborations with several industrial companies (Tecna, Bosch, SNAM Rete Gas, Eni, Enel, Saipem) and research institutions (ENEA and RSE) in the frame of contracts awarded to the universities where he worked. However, it does not appear that he acted as responsible or principal investigator of any of these contracts.

CONSISTENCY WITH THE REQUIRED PROFILE:

On the basis of the teaching activity carried out in the field of the Energy Systems and the scientific activity, the candidate fully responds to the profile requested by the current selection.

SCRUTINY OF THE DEGREE OF KNOWLEDGE OF THE ENGLISH LANGUAGE:

From the analysis of the documents and the publications submitted, it is evident that the candidate has a satisfactory knowledge of the English language.

CANDIDATE: MANENTE Giovanni

CURRICULUM:

Born in Dolo (Venice) on October 19, 1982, dr. Manente received B.Sc (2004) and M.Sc degree (cum laude, 2007) in Mechanical Engineering, and PhD (2011) in Energetics, all from the University of Padova. Since 2011, he is post-doc researcher at the Department of Industrial Engineering, University of Padova.

During his PhD studies, Giovanni Manente carried out a 12 month Internship at ENEL Research Center in Pisa and spent a visiting period from January to July 2010 at the Massachusetts Institute of Technology (USA), where he actively collaborated with the "Geothermal Research Group". This activity was summarized in a conference paper presented at the IMECE conference in Denver (CO) that allowed him to receive the ASME "2012 Best Student Paper Award".

Dr. Manente got the qualification to apply for open positions as Associate Professor in Italy (sector 09/C1) in February 2017.

SUBMITTED PUBLICATIONS:

Publication number	Type/Title of Publication	Judgment
1	Da Lio L., Manente G., Lazzaretto A., 2017, "A mean-line model to predict the design efficiency of radial inflow turbines in organic Rankine cycle (ORC) systems", <i>Applied Energy</i> , vol. 205, pp. 187-209	Very good
2	Manente G., Lazzaretto A., Bonamico E., 2017, "Design guidelines for the choice between single and dual pressure layouts in organic Rankine cycle (ORC) systems", <i>Energy</i> , vol. 123, pp. 413-431.	Very good
3	Manente G., Da Lio L., Lazzaretto A., 2016, "Influence of axial turbine efficiency maps on the performance of subcritical and supercritical Organic Rankine Cycle systems", <i>Energy</i> , vol. 107, pp. 761-772.	Very good
4	Manente G., Rech S., Lazzaretto A., 2016, "Optimum choice and placement of concentrating solar power technologies in integrated solar combined cycle systems", <i>Renewable Energy</i> , vol. 96, pp. 172-189.	Very good
5	Da Lio L., Manente G., Lazzaretto A., 2016, "Predicting the optimum design of single stage axial expanders in ORC systems: is there a single efficiency map for different working fluids?", <i>Applied Energy</i> , vol. 167, pp. 44-58.	Very good
6	Manente G., 2016, "High performance integrated solar combined cycles with minimum modifications to the combined cycle power plant design", <i>Energy Conversion and Management</i> , vol. 111, pp. 186-197.	Very good
7	Vivian J., Manente G., Lazzaretto A., 2015, "A general framework to select working fluid and configuration of ORCs for low-to-medium temperature heat sources", <i>Applied Energy</i> , vol. 156, pp. 727-746.	Very good
8	Soffiato M., Frangopoulos C.A., Manente G., Rech S., Lazzaretto A., 2015, "Design optimization of ORC systems for waste heat recovery on board a LNG carrier", <i>Energy Conversion and Management</i> , vol. 92, pp. 523-534.	Very good
9	Da Lio L., Manente G., Lazzaretto A., 2014, "New efficiency charts for the optimum design of axial flow turbines for organic Rankine cycles", <i>Energy</i> , vol. 77, pp. 447-459.	Very good
10	Manente G., Lazzaretto A., 2014, "Innovative biomass to power conversion systems based on cascaded supercritical CO ₂ Brayton cycles", <i>Biomass and Bioenergy</i> , vol. 69, pp. 155-168.	Good
11	Toffolo A., Lazzaretto A., Manente G., Paci M., 2014, "A multi-criteria approach for the optimal selection of working fluid and design parameters in Organic Rankine Cycle systems", <i>Applied Energy</i> , vol. 121, pp. 219-232.	Excellent
12	Manente G., Toffolo A., Lazzaretto A., Paci M., 2013, "An Organic Rankine Cycle off design model for the search of the optimal control strategy", <i>Energy</i> , vol. 58, pp. 97-106.	Excellent

13	Lazzaretto A., Manente G., 2009, "Analysis of Superimposed Elementary Thermodynamic Cycles: from the Brayton-Joule to Advanced Mixed (Auto-Combined) Cycles", International Journal of Thermodynamics, vol. 12, pp. 123-130.	Good
14	Manente G., 2011, "Analysis and development of innovative binary cycle power plants for geothermal and combined geo-solar thermal resources", PhD thesis.	Very good

OVERALL COLLECTIVE JUDGEMENT

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

The research activities of Giovanni Manente focused primarily on fields strictly connected to the scientific disciplinary sector ING-IND/09 (Energy Systems and power generation):

- Thermodynamic cycles for geothermal applications and development of hybrid geothermal-solar power plants
- Design of turbines for Organic Rankine Cycle systems
- Fossil-fueled power plants with hydrogen production and CO₂ capture
- Integration of solar energy into natural gas combined cycle power plants
- Innovative biomass-fired power plants

The publications presented by the candidate are completely encompassed in the subjects relevant to sector ING-IND/09. Most of them relate to the simulation and analysis of Organic Rankine Cycle power plants, including the performance prediction of the turbines used in this context. They show a remarkable degree of originality and represent a significant research path for the reference sector. From the continuity of his scientific production, it is also evident a significant contribution in the co-authored papers submitted for this call.

The scientific production of the candidate proves a solid knowledge of commercial simulation tools for energy systems, together with the capability of developing new codes on his own. Despite of a relatively young academic age, his scientific production consists of 32 scientific documents (some of which received a significant number of citations in few years) distributed as follows:

- 17 papers published in international peer-reviewed journals,
- 15 papers published in international conference proceedings.

Author's indexes deduced from the main bibliographic databases accessed on 20-12-2017 are summarized in the table below.

	Scopus	Web of Science
Number of documents	30	16
Number of citations	334	245
Number documents with citations	271	205
Number of citations without self-citations	307	227
h-index	10	7

Overall, the scientific work of the candidate is very good, certainly adequate to the specifications of the call.

DIDACTIC ACTIVITIES CARRIED OUT IN ITALIAN OR FOREIGN UNIVERSITIES OR BODIES:

Dr. Manente is adjunct professor at the Department of Industrial Engineering of the University of Padova. Since academic year 2011-12, he teaches three credits (out of nine) of the course "Power Plant Technology" (responsible lecturer prof. A. Lazzaretto) for the B.Sc degree in Energy Engineering at the University of Padova.

The candidate also has teaching experience at Lund University (Sweden) and University of Ljubljana (Slovenia) in the frame of the Erasmus+ Staff Mobility for Teaching program.

He served as supervisor of several final reports for the B.Sc degree in Energy Engineering, and co-supervisor of eleven Master theses at the University of Padova.

From the analysis of his teaching activity, it appears that the applicant's experience does not completely respond to the requirements of the current selection.

SCIENTIFIC RESPONSIBILITY FOR FUNDED RESEARCH PROJECTS:

The candidate reports his involvement in project project funded by the Veneto Region and in a series of research collaborations with Enel in the frame of different contracts awarded to University of Padova. However, it does not appear that he acted as responsible or principal investigator of any of these contracts.

CONSISTENCY WITH THE REQUIRED PROFILE:

On the basis of the teaching activity carried out in the field of the Energy Systems and the scientific activity, the candidate fully responds to the profile requested by the current selection.

SCRUTINY OF THE DEGREE OF KNOWLEDGE OF THE ENGLISH LANGUAGE:

From the analysis of the documents and the publications submitted, it is evident that the candidate has a good knowledge of the English language.

CANDIDATE: MARTELLI Emanuele

CURRICULUM:

Emanuele Martelli was born in S. Benedetto del Tronto (Ascoli Piceno) on February 20, 1982. He received B.Sc (cum laude 2004) and M.Sc degree (cum laude, 2006) in Mechanical Engineering, from Politecnico di Milano where he was awarded with some prizes for his academic achievements (highest exam score). In 2010, he got a PhD (cum laude) in Energy Engineering, always from Politecnico di Milano. During his PhD, he was visiting student at Princeton University (USA).

In the period 2010-2011 he worked as contract researcher at Politecnico di Milano, where he became assistant professor in the sector "ING-IND/09 - Energy Systems and Power generation" in December 2011 (tenure received in 2014).

In 2014 and 2016, Dr. Martelli spent two 3-month periods as visiting professor respectively at EPFL (Ecole Polytechnique Federale de Lausanne, Lausanne – CH) and ETH (Swiss Federal Institute of Technology, Zurich – CH), for collaborative research activities about optimization of energy systems. During his career, the applicant participated to the scientific committee of two European conferences and held a semi-plenary lecture in the final conference organized in the frame of a COST action on optimization of energy networks. He was also invited for seminars in several European universities and research institutions.

Dr. Martelli was awarded the national scientific qualification for associate professorship for the sector 09/C1 in December 2014.

SUBMITTED PUBLICATIONS:

Publication number	Type/Title of Publication	Judgment
1	Martelli E., Kreutz T., Carbo M., Consonni S., Jansen D.: Shell coal IGCCS with carbon capture: Conventional gas quench vs. innovative configurations. Applied Energy Vol. 88 (11), pp. 3978-3989, November 2011	Very good
2	Martelli E., Amaldi E., Consonni S.: Numerical optimization of heat recovery steam cycles: Mathematical model, two-stage algorithm and applications. Computers and Chemical Engineering Vol. 35(12), pp. 2799-2823, December 2011	Very good
3	Martelli E., Nord L., Bolland O.: Design criteria and optimization of heat recovery steam cycles for integrated reforming combined cycles with CO ₂ capture. Applied Energy Vol. 92, pp. 255-268, April 2012	Excellent
4	Gazzani M., Chiesa P., Martelli E., Sigali S., Brunetti I.: Using Hydrogen as Gas Turbine Fuel: Premixed Versus Diffusive Combustors. Journal of Engineering for Gas Turbines and Power, 136(5), pp. 051504-1 - 051504-10, January 2014	Excellent
5	Bischi A., Taccari L.; Martelli E., Amaldi E., Manzolini G., Silva P., Campanari S., Macchi E.: A detailed optimization model for combined cooling, heat and power system operation planning. Energy, Vol. 74, pp. 12-26, September 2014	Very good

6	Lanzini A., Kreutz T., Martelli E., Santarelli M.: Energy and economic performance of novel integrated gasifier fuel cell (IGFC) cycles with carbon capture. International Journal of Greenhouse Gas Control, 26, pp. 169-184. July 2014	Very good
7	Gatti M., Martelli E., Marechal F., Consonni S.: Review, Modelling, Heat Integration, and Improved Schemes of Rectisol-based processes for CO ₂ capture. Applied Thermal Engineering, Vol. 70(2), pp. 1123-1140, September 2014	Excellent
8	Nord L., Martelli E., Bolland O.: Weight and power optimization of steam bottoming cycle for offshore oil and gas installations. Energy, vol. 76, pp. 891-898, November 2014	Good
9	Martelli E., Capra F., Consonni S.: Numerical Optimization of Combined Heat and Power Organic Rankine Cycles - Part A: Design Optimization. Energy Vol. 90 Part 1, pp.310-328, October 2015	Very good
10	Capra F., Martelli E.: Numerical Optimization of combined heat and power Organic Rankine Cycles – Part B: simultaneous design & part-load optimization. Energy Vol. 90 Part 1, pp. 329 Energy, pp. 329-343, October 2015	Very good
11	Scaccabarozzi R., Gatti M., Martelli E.: Thermodynamic analysis and numerical optimization of the NET Power oxy-combustion cycle. Applied Energy Vol. 178, pp. 505-526. September 2016	Excellent
12	Lazzaroni, E. F., Elsholkami, M., Arbiv, I., Martelli, E., Elkamel, A., Fowler, M.: Energy infrastructure modeling for the oil sands industry: Current situation. Applied Energy, vol. 181 , pp. 435-445, November 2016	Very good
13	Elsido C., Bischi A., Silva P., Martelli E.: Two-stage MINLP algorithm for the optimal synthesis and design of networks of CHP units. Energy, Vol. 121, pp. 403-426, February 2017	Good
14	Martelli E., Elsido C., Mian A., Marechal F.: MINLP Model and two-stage Algorithm for the Simultaneous Synthesis of Heat Exchanger Networks, Utility Systems and Heat Recovery Cycles. Computers and Chemical Engineering (article accepted on January the 24th 2017 and currently "in press")	Good

OVERALL COLLECTIVE JUDGEMENT

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

Research activities of Emanuele Martelli have focused primarily on fields mostly connected to the scientific disciplinary sector ING-IND/09 (Energy Systems and power generation):

- Methods and algorithms for energy systems optimization
- Heat integration and heat recovery steam cycles for advanced power plants
- CO₂ capture technologies
- Organic Rankine Cycles
- Design and operation of energy hubs and Combined Heat and Power systems
- Energy efficiency in oil extraction from Alberta's tar sands

The distinctive trait of the candidate's research activity is the optimization of energy systems. Scientific production of dr. Martelli proves that he was able to originate an innovative research line, starting from the development of algorithms and mathematical tools for the solution of optimization problems, and then applying these procedures for design improvement and efficient operations of different classes of energy systems. These achievements are even more remarkable considering that they have been attained in a relatively short period.

The publications presented by the candidate exhibit good quality and adequate publishing position. They prove that the candidate has an in-depth acquaintance with advanced simulation software for energy systems, together with the capability of developing new modelization tools on his own.

Overall, the scientific production of the candidate is consistent with the topics relevant to sector ING-IND/09 and it consists of 55 items distributed as follows:

- 21 papers published in international peer-reviewed journals,
- 1 monograph and 2 book chapter,

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- 25 papers published in international peer-reviewed conference proceedings,
- 6 papers presented to other conferences.

Author's indexes deduced from the main bibliographic databases accessed on 20-12-2017 are summarized in the table below.

	Scopus	Web of Science
Number of documents	52	36
Number of citations	406	328
Number documents with citations	326	270
Number of citations without self-citations	306	267
h-index	11	10

Dr. Martelli also co-authored two patents on phase-change processes for CO₂ and H₂S separation from syngas mixtures.

Overall, based on the criteria and the parameters normally adopted at the international level, the scientific work of the candidate is very good, with evident innovative contributions, certainly adequate to the specifications of the call.

DIDACTIC ACTIVITIES CARRIED OUT IN ITALIAN OR FOREIGN UNIVERSITIES OR BODIES:

From academic year 2011-12, Dr. Martelli has been teaching as responsible lecturer, at Politecnico di Milano, a number of courses at the M.Sc level in mechanical and energy engineering, all related to the field of Energy Systems. He served as lecturer for a course of an honor program jointly established by Politecnico di Milano and Politecnico di Torino. He also served as supervisor of more than 10 master students and 5 PhD students at Politecnico di Milano.

From the above notes, it is evident that the candidate has matured a significant capability in teaching courses in the fields relevant to this call, and his experience adequately responds to the requirements of this selection.

SCIENTIFIC RESPONSIBILITY FOR FUNDED RESEARCH PROJECTS:

The candidate has carried out a significant activity as member of the research teams funded through peer-reviewed calls or by contracts with industrial companies (among which BP, Eni, Enel, AMEC-Foster Wheeler) and public organizations. Dr. Martelli has played the role of principal investigator for a regional funded project about optimization of energy systems for urban districts, and for a sub-contract awarded by Princeton University to Politecnico di Milano in the frame of project funded by the US Department of Energy about synthesis of jet fuel with CO₂ capture.

The overall assessment of the candidate's activity in funded programs indicates the attainment of a fair capability of promoting and managing research projects, that partly meets the requirement of this selection procedure.

CONSISTENCY WITH THE REQUIRED PROFILE:

The teaching experience in the field of the Energy Systems is fully coherent with the profile requested by the current selection. On the other hand, some aspects of his research activity seem more relevant to other disciplines as applied mathematics or computer science and do not fully responds to the requirements of this call.

SCRUTINY OF THE DEGREE OF KNOWLEDGE OF THE ENGLISH LANGUAGE:

From the analysis of the documents and the publications submitted, it is evident that the candidate has a satisfactory knowledge of the English language.

CANDIDATE: MONTOMOLI Francesco

CURRICULUM:

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Dr. Montomoli was born in Firenze on September 1, 1975. He got a Master's Degree in Mechanical Engineering in 2000 and a PhD in Energy Engineering in 2004, both from University of Florence. Since then, he has held a number of different offices as listed below:

- 2004: Visiting scholar at Texas AM University, Turbine Heat Transfer Lab, TX, USA
- 2005-2006: Design Engineer, General Electric Oil&Gas, R&D group, Firenze, Italy
- 2006-2009: Research Associate, Whittle Laboratory, Univ. of Cambridge, UK
- 2009-2011: Senior Fellow-College Lecturer, Univ. of Cambridge, UK, Girton College
- 2011-2012: Research Professor in Applied Math and Leader of CFD Team, Basque Centre for Applied Math, Bilbao, Spain
- 2012-2014: Senior Lecturer in Computational Fluid Dynamics, Univ. of Surrey, UK
- July 2014-now: Senior Lecturer, head of the UQlab, Aeronautics Dept., Imperial College of London, UK. Tenure obtained on 27/11/2014.

During his career, dr. Montomoli served as expert in different European review panels and was invited as speaker in several events organized by industrial companies and academic institutions.

Dr. Montomoli has passed the national scientific qualification for associate professorship for the sector 09/A1 (Aeronautical and aerospace engineering and naval architecture) in February 2014, and for associate and full professorship for the sector 09/C1 (Fluid machinery, energy systems and power generation) respectively in January 2014 and March 2017.

SUBMITTED PUBLICATIONS:

Publication number	Type/Title of Publication	Judgment
1	Montomoli F, D. Amirante, N Hills, S. Shapahr, M. Massini, "Uncertainty Quantification, Rare Events, and Mission Optimization: Stochastic Variations of Metal Temperature During a Transient", Journal of Gas Turbine and Power, April 2015, Vol. 137.	Very good
2	Montomoli F, D'Ammaro A., Uchida S. "Numerical and Experimental Investigation of a New Film Cooling Geometry with High P/D Ratio", J. of Heat and Mass Transfer, vol. 66 (2013), pp. 366–375.	Excellent
3	D'Ammaro A, Montomoli F.: "Uncertainty Quantification and Film Cooling", Journal of Computer and Fluids, vol. 71 (2013), pp. 320–326	Very good
4	Montomoli F., D'Ammaro A, Uchida S.: "Uncertainty Quantification and Conjugate Heat Transfer: a Stochastic Analysis", Journal of Turbomachinery, May 2013, Vol. 135.	Excellent
5	Montomoli F., E. Naylor, H.P. Hodson, L. Lapworth "Unsteady effects in axial compressors: a multistage simulation", Journal of Propulsion and Power, 2013.	Very good
6	Montomoli F., Massini M, Salvadori S., Martelli F: "Geometrical Uncertainty and Film Cooling: Fillet Radii", Journal of Turbomachinery, January 2012, Vol. 134.	Excellent
7	Montomoli F, Massini M., H. Yang, J.C. Han: "The Benefit of High-Conductivity Nozzle Material" International Journal of Heat and Fluid Flow, vol. 34 (2012), pp. 107–116	Excellent
8	Salvadori S, Montomoli F, Chana K, Martelli F, Povey T., Qureshi I., "Analysis of the Effect of a Non-uniform Inlet Profile on Heat Transfer and Fluid Flow in Turbine Stages" Journal of Turbomachinery, January 2012, Vol. 134.	Excellent
9	Montomoli F., Hodson, H.P., Haselbach, F.: "Effect of roughness and unsteadiness on the performance of a new LPT blade at low Reynolds numbers", J. of Turbomachinery, July 2010, Vol. 132, pp. 031018-1 to 9.	Excellent
10	Montomoli F., Eastwood S.: "Implementation of Synthetic Turbulence Inlet for Turbomachinery LES": International Journal of Computer and Fluids, Elsevier, vol. 46 (2011), pp. 369–374	Very good
11	Montomoli F, M. Massini, S. Salvadori: "Geometrical Uncertainty in Turbomachinery": International Journal of Computer and Fluids, Elsevier, vol. 46 (2011), pp. 362–368	Very good
12	Montomoli F., Adami P., Martelli F.: "A finite volume method for the conjugate heat transfer in film cooling devices", Journal of Power and Energy, 2009.	Very good

13	Pietropaoli M, Ahlfeld R, Montomoli F, Ciani A, D'Ercole M, Design for Additive Manufacturing: Internal Channel Optimization, Journal of Engineering for Gas Turbines and Power, October 2017, Vol. 139, pp. 102101-1 to 8.	Excellent
14	Casari N, Pinelli M, Suman A, Di Mare L, Montomoli F, AN ENERGY BASED FOULING MODEL FOR GAS TURBINES: EBFOG, Journal of Turbomachinery, FEBRUARY 2017, Vol. 139 / 021002-1 to 8	Excellent

OVERALL COLLECTIVE JUDGEMENT

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

The research activity of Francesco Montomoli mainly relates to the field of gas turbine engines. He faced this topic from multiple perspectives, looking at the performance assessment of cooling circuits, experimental and CFD analysis of turbomachines and, notably, evaluation of the impact of different unpredictable events (like manufacturing tolerances or geometrical modifications occurring during operations, unexpected operating conditions, etc.) on the engine performance according to the "uncertainty quantification" approach.

The candidate chose to submit only the first page of 11 publications and only 3 full text. However, the board decided to evaluate his scientific production based on the available information from the Scopus database. They show a remarkable degree of originality and set a structured approach for a wide range of different issues occurring in design and operation of gas turbine engines. Overall, the scientific work of the candidate is excellent, with evident innovative contributions, pointing out a high-level technical skills and outstanding management capabilities and maturity.

Overall, the scientific production of the candidate is fundamentally consistent with the topics relevant to sector ING-IND/09 and it consists of 58 items distributed as follows:

- 30 papers published in international peer-reviewed journals,
- 25 papers published in international peer-reviewed conference proceedings,
- 12 papers presented to other conferences,
- 1 book

Author's indexes deduced from the main bibliographic databases accessed on 20-12-2017 are summarized in the table below.

	Scopus	Web of Science
Number of documents	51	60
Number of citations	407	187
Number documents with citations	306	148
Number of citations without self-citations	322	134
h-index	13	8

Dr. Montomoli is also the sole inventor of a patent on a novel film cooling geometry.

In summary, based on the criteria and the parameters normally adopted at the international level, the quality of the scientific production of dr. Montomoli is believed to be excellent, certainly adequate to the specifications of the current call.

DIDACTIC ACTIVITIES CARRIED OUT IN ITALIAN OR FOREIGN UNIVERSITIES OR BODIES:

Francesco Montomoli carried out his teaching activity mainly in England where he served as lecturer and senior lecturer in different universities. His CV does not report the detail of his teaching experience, but it generally states of assignments in Mathematics, Computational Fluid Dynamics, and Compressible Flows. He also served as supervisor of seven PhD students and co-supervisor of some others. He also participated as external member in the PhD thesis evaluation committee of three Italian and British Universities. The position held and the reputation of his university affiliation support the candidate's teaching quality, but the documented experience and the topics of courses he taught, do not entirely comply with the requirements of the current selection.

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SCIENTIFIC RESPONSIBILITY FOR FUNDED RESEARCH PROJECTS:

The candidate has participated to a number of wide-ranging research projects funded through peer-reviewed calls, as well as to a long list of research contracts with industrial companies (including Rolls Royce, General Electric, Mitsubishi Heavy Industries, Airbus) and public organizations. In many instances, dr. Montomoli has played the role of responsible, principal investigator or team leader. These activities cover a wide range of topics at the forefront of research in the gas turbine industry. Overall, the experience gained in connection to funded research projects indicates the full achievement of the capability of proposing, pursuing and managing important research projects at international level, it and completely fits the requirements of the present call.

CONSISTENCY WITH THE REQUIRED PROFILE:

From the analysis of the CV of dr. Montonoli, it is evident that the teaching activities of the candidate do not fully comply with the requirements of the current selection. Mathematics cannot be included in the disciplines interested in the present call while Compressible Flows is a subject only partially related to the ING-IND/09 sector. The research activity of the candidate, aimed at the study of single issues or components of gas turbine engines, is overall related to the requirements of the current selection procedure. However some aspects of his scientific production seem more relevant to aerodynamics and propulsion (to such an extent that he passed the national scientific qualification for associate professorship for the sector 09/A1) or applied mathematics and they do not fully responds to the requirements of this call.

SCRUTINY OF THE DEGREE OF KNOWLEDGE OF THE ENGLISH LANGUAGE:

The publications and the scientific documents authored by the candidate make clear that he has a very good knowledge of the English language, evidently appropriate to meet the specifications of the call being addressed by the Board.

THE BOARD

Prof. Paolo Chiesa (Chairman and Secretary)

Prof. Viktor Scherer (Member)

Prof. David Sánchez (Member)

Paolo Chiesa

V. Scherer



PUBLIC SELECTION ESTABLISHED WITH DIRECTOR'S DECREE NO. 2017/PRA_ENE15 OF 03/08/2017 PURSUANT TO THE NOTICE PUBLISHED IN THE OFFICIAL GAZETTE NO. 08/09/2017, n.68 FOR 1 POSITION AS ASSOCIATE PROFESSOR FOR THE COMPETITION SECTOR 09/C1 - FLUID MACHINERY, ENERGY SYSTEMS AND POWER GENERATION - SDS ING-IND/09 - ENERGY SYSTEMS AND POWER GENERATION, PURSUANT TO ART. 18 - LAW 240/2010, AT THE POLITECNICO DI MILANO - DEPARTMENT OF ENERGY (PROCEDURE CODE 2017/PRA_ENE15).

ATTACHMENT No. 2 to the FINAL REPORT

MERIT RANKING

SURNAME AND NAME	Overall score
MARTELLI EMANUELE	83
GIUFFRIDA ANTONIO	78
MONTOMOLI FRANCESCO	77

Milan, January 18, 2018

THE BOARD

Prof. Paolo Chiesa (Chairman and Secretary)

Prof. Viktor Scherer (Member)

Prof. David Sánchez (Member)

Paolo Chiesa

Viktor Scherer

