



EVALUATION PROCEDURE FOR THE APPOINTMENT OF 1 FULL PROFESSOR PURSUANT TO ARTICLE 24, PARAGRAPH 6 - LAW 240/2010, AT THE POLITECNICO DI MILANO - DEPARTMENT OF ENERGY FOR THE ACADEMIC RECRUITMENT FIELD 09/C2 - THERMAL SCIENCES, ENERGY TECHNOLOGY, BUILDING PHYSICS AND NUCLEAR ENGINEERING, ACADEMIC DISCIPLINE ING-IND/10 - THERMAL ENGINEERING AND INDUSTRIAL ENERGY SYSTEMS, PROCEDURE CODE 2023_VAL_I_DENG_1.

MINUTES

The Selection Board, appointed with RD Index No. 9298 ref. No. 191985 of 11 agosto 2023, composed by the following professors:

Prof. COLOMBO Luigi Pietro Maria – Politecnico di Milano;
Prof. COLONNA Piero – Delft Univeristy of Technology;
Prof. WEIGAND Bernhard – Universität Stuttgart,

on September 28th at 14:00, meets in telematic mode.

The members of the Selection Board take note that no objection to the board members in relation to this selection procedure had reached the University and therefore the Selection Board was fully entitled to operate in accordance with the rules of the competition.

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

WEIGAND BERNHARD, FULL PROFESSOR AT UNIVERSITÄT STUTTGART, CHAIRMAN;
COLOMBO LUIGI PIETRO MARIA, FULL PROFESSOR (PROFESSORE DI I FASCIA) AT POLITECNICO DI MILANO, SECRETARY.

The Selection Board inspects the list of applicants, who are:

1) Rinaldi Fabio

Each member of the Selection Board declares 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 states that there were no reasons for abstention pursuant to arts. 51 and 52 of the Civil Procedure Code.

The members of the Selection Board also declare, 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 notes that the competition procedure must be concluded within **11 October 2023** (3 months from the date of publication of the decree appointing the Selection Board).

The Selection Board also takes note of the scientific and educational profile indicated by the Department:

The educational profile will encompass teachings characteristic of the Industrial Technical Physics sector (ING IND/10), to be carried out at the affiliated School and within the framework of the Study Courses in the area. Regarding the scientific profile, the winning candidate will be responsible for leading the research group whose scientific activity is dedicated to physical/data-driven modelling for simulation, predictive control, and optimization of energy systems. Additionally, the winning candidate will assume the Technical Direction of the M.R.T. Test Laboratory, a European reference thermostatic chamber, designated body notified by the MISE in accordance with Regulation (EU) No. 305 for the harmonized technical specification EN 442, and the

accredited L.T.T. Laboratory for the calibration of industrial thermometers, both in laboratory and field environments, with specific reference to calibrations and tests on steam generators in operation at waste-to-energy power plants. Proficiency in the English language is required.

The Selection Board, referring to the scientific and educational profile indicated above, will make use of the following criteria:

- a) quality of scientific and/or project production, assessed on the basis of criteria and parameters recognized by the international scientific community of reference;
- b) didactic activities carried out in Italian or foreign Universities or bodies;
- c) scientific responsibility for funded research projects;
- d) results obtained in technology transfer in terms of participation in the creation of new enterprises (spin off), development, use and marketing of patents.

After adequate evaluation, based on the scientific and educational profile indicated by the Department, the Selection Board collectively proceeds to express a judgment for each of the established criteria for each candidate, as well as an overall collective judgment.

CANDIDATE: Rinaldi Fabio

CRITERIA	JUDGMENT
<p>a) quality of scientific and/or project production, assessed on the basis of criteria and parameters recognized by the international scientific community of reference</p>	<p>The candidate has submitted 20 scientific articles published in indexed international journals typical of the Academic Recruitment Field 09/C2 (Thermal Sciences, Energy Technology, Building Physics and Nuclear Engineering), with specific relevance to the Academic discipline ING-IND/10 (Industrial Thermal Engineering).</p> <p>The editorial collocation of the papers is of high level, concerning scientific journals classified in the first quartile of the Scimago Journal Ranking database except one classified in the second quartile.</p> <p>The number of co-authors ranges from one to four. In two of them, the candidate appears as the first author, while in 13 publications he is the last author, which suggests his role as coordinator of the research activity. It is worth mentioning a large number of faculty members from international institutes.</p> <p>The candidate has carried out his research activity in a variety of topics related to Industrial Thermal Engineering (ING-IND/10), focusing on innovative processes and technologies with a vision on future developments in the field. In particular, significant contributions are noteworthy in the following areas: (1) Analysis and multi-objective optimization of fuel cell systems of different types (low to high temperature) and in combination with other technologies (hybrid systems). (2) Analysis and optimization of cascade refrigeration systems. (3) Techno-economic feasibility of photovoltaic-wind-diesel hybrid systems in off-grid applications. (4) Development of an experimental methodology for the accurate measurement of temperatures in the post-combustion chambers waste to energy steam generators. (5) Physical and data-driven models for the prediction and optimization of industrial heat generators.</p> <p>A good methodological approach and characters of originality and innovation in the mentioned topics mark the scientific production.</p> <p>The relevance and impact of the publications in the context of the Academic Recruitment Field are also highlighted by the high number of citations (H-index without self-citations: 20).</p> <p>Eventually, the scientific production is consistent with the scientific and educational profile indicated by the Department of Energy.</p>
<p>b) didactic activities carried out in Italian or foreign Universities or bodies;</p>	<p>The candidate has been carrying out didactic activities at Politecnico di Milano with tenure and continuity since A.Y. 2005-06. Teaching has taken place both in the Bachelor and in the Master of Science of degree programmes strictly related to the Academic Discipline ING-IND/10 (Industrial Thermal Engineering) like Mechanical Engineering and Energy Engineering, dealing with basic and advanced thermodynamics and heat transfer. Such an activity is also consistent with the scientific and educational profile indicated by the Department of Energy.</p>

	<p>Research dissemination activities are also documented by seminars held at the University of Connecticut - Center for Clean Energy Engineering (Storrs - CT- U.S.A.) and as an Invited Guest Research Fellow at the College of Engineering of the Florida State University - Center for Advanced Power Systems (Tallahassee - FL - U.S.A.).</p>
<p>c) scientific responsibility for funded research projects;</p>	<p>The candidate has been involved in four national funded research projects and one international research project.</p> <p>As a member of the technical direction of the L.T.T. lab (Thermometric Calibration Laboratory) at Politecnico di Milano, Department of Energy, the candidate has held numerous contracts for the calibration of thermometric chains installed in waste-to-energy industrial steam generators and for the performance testing of waste-to-energy plants, with and without district heating. This activity has been carried out both in Italy and in Europe.</p> <p>The candidate has also managed a large number of consulting and/or research contracts entrusted by private entities.</p> <p>Globally, the involvement in public/private research projects is satisfactory and has led to significant dissemination.</p>
<p>d) results obtained in technology transfer in terms of participation in the creation of new enterprises (spin off), development, use and marketing of patents</p>	<p>The candidate did not claim any item in this field.</p>

OVERALL COLLECTIVE JUDGEMENT

The candidate is currently Associate Professor with the Department of Energy at Politecnico di Milano, in the Academic Recruitment Field 09/C2, Academic Discipline ING-IND/10 – Industrial Thermal Engineering.

The research activity is well framed in the Academic Discipline and characterized by an appreciable extension concerning experimental methodologies as well as physical and data-driven modeling. The candidate is in charge of two laboratories at the Department of Energy, and involved in a sufficient number of national/international research projects. It is noticeable the close relationship of the activities with the Industrial sector in the fields of temperature measurements in waste-to-energy plants, and energy systems optimization.

The teaching activity has been carried out continuously at the Politecnico di Milano since A.Y. 2005/06, concerning courses of basic and advanced thermodynamics and heat transfer typical of the Academic Discipline.

Both the research and teaching activities are consistent with the scientific and educational profile indicated by the Department of Energy.

The Selection Board, taking into account the judgments given, selects, according to the majority of its members, the following candidate, considered most qualified to carry out the didactic-scientific functions for which the procedure has been activated: **Rinaldi Fabio**.

The meeting ended at 15:05.

Read, approved and signed.

THE SELECTION BOARD

Prof. Bernhard Weigand (Chairman)

Prof. Piero Colonna (Member)

Prof. Luigi Pietro Maria Colombo (Secretary)

Bernhard Weigand
Piero Colonna
Luigi Pietro Maria Colombo