POLITECNICO MILANO 1863

PUBLIC SELECTION ESTABLISHED WITH DIRECTOR'S DECREE NO. 2023_PRA_DMAT_5 OF 18/07/2023 PURSUANT TO THE NOTICE PUBLISHED IN THE OFFICIAL GAZETTE NO. 28/07/2023, n. 57 FOR 1 POSITION AS ASSOCIATE PROFESSOR FOR THE COMPETITION SECTOR 01/A4 - MATHEMATICAL PHYSICS - SDS MAT/07 - MATHEMATICAL PHYSICS, PURSUANT TO ART. 18 - LAW 240/2010, AT THE POLITECNICO DI MILANO - DEPARTMENT OF MATHEMATICS (PROCEDURE CODE 2023_PRA_DMAT_5).

FINAL REPORT

The Selection Board, appointed with RD Index No. 9471 ref. No. 196699 of 29 August 2023, composed by the following Professors:

Prof. CORREGGI Michele - Politecnico di Milano;
Prof. FAUPIN Jérémy - Université de Lorraine;
Prof.ssa SAFFIRIO Chiara - Universität Basel,

met on on **October 2, 2023** at **14:30**, for the first teleconference meeting.
Each board member was connected from his/her workstation.

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

Prof. CORREGGI Michele at Politecnico di Milano, Chairman;
Prof. SAFFIRIO Chiara at Universität Basel, Secretary.

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

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

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

On **09/10/2023** at **17:00**, The Selection Board met on teleconference and inspects the list of applicants, who are:

1) **Lucia Angelo**
2) **Olgiati Alessandro**
3) **Riccobelli Davide**

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 Selection Board examines the documentation submitted by the candidates.

The meeting ended at **18:00**.

The Section Board met on **23/10/2023** at **15:00** on teleconference.

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

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

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

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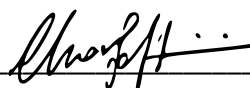

THE SELECTION BOARD

Prof. CORREGGI Michele (Chairman)   _____

Prof. FAUPIN Jérémy (Member)   _____

Prof. SAFFIRIO Chiara (Secretary)   _____

PUBLIC SELECTION ESTABLISHED WITH DIRECTOR'S DECREE NO. 2023_PRA_DMAT_5 OF 18/07/2023 PURSUANT TO THE NOTICE PUBLISHED IN THE OFFICIAL GAZETTE NO. 28/07/2023, n. 57 FOR 1 POSITION AS ASSOCIATE PROFESSOR FOR THE COMPETITION SECTOR 01/A4 - MATHEMATICAL PHYSICS - SDS MAT/07 - MATHEMATICAL PHYSICS, PURSUANT TO ART. 18 - LAW 240/2010, AT THE POLITECNICO DI MILANO - DEPARTMENT OF MATHEMATICS (PROCEDURE CODE 2023_PRA_DMAT_5).

ATTACHMENT No. 1 to the FINAL REPORT

CRITERIA	Quality of scientific and/or project production, assessed on the basis of criteria and parameters recognized by the international scientific community of reference	Teaching activity at the university level in Italy or abroad	Scientific responsibility for funded research projects	Total
Lucia Angelo	**50**	**20**	**6.5**	**76.5**
Olgiati Alessandro	**55**	**17.5**	**8.5**	**81**
Riccobelli Davide	**40**	**9**	**6.5**	**55.5**

CANDIDATE: **Lucia Angelo**

CURRICULUM:
PhD in Mathematics, Universidad Complutense de Madrid, 2016;
postdoc, University of Copenhagen, 2016 – 2018;
Sherman Fairchild Fellow, California Institute of Technology, 2018 – 2021;
Ramón y Cajal Fellow, Universidad Complutense de Madrid, 2021 – .

Premio de Investigación Matemática "Vicent Caselles", 2017;
Premio de Investigación "José Luis Rubio de Francia", 2018.

11 invited talks;
participation to 4 research periods;
mini-course at the University of Warsaw, 2022.

Organization of 3 major events.

The overall judgment of the curriculum is **very good**.

SUBMITTED PUBLICATIONS:

No. of publications	Type/Title of Publication	Judgment
1	A. Lucia, A. Young, A nonvanishing spectral gap for AKLT models on generalized decorated graphs, *Journal of Mathematical Physics* **64** (4), 2023	**very good**
2	I. Bardet, Á. Capel, L. Gao, A. Lucia, D. Pérez-García, C. Rouzé, Rapid thermalization of spin chain commuting Hamiltonians, *Physical Review Letters* **130** (6), 060401, 2023	**very good**

3	M. Christandl, A. Lucia, P. Vrana, A.H. Werner, Tensor network representations from the geometry of entangled states, *SciPost Physics* **9** (3), 042, 2020	**sufficient**
4	J. Bausch, T.S. Cubitt, A. Lucia, D. Perez-Garcia, Undecidability of the spectral gap in one dimension, *Physical Review X* **10** (3), 031038, 2020	**good**
5	J. Martyn, K. Kato, A. Lucia, Deformations of the boundary theory of the square-lattice AKLT model, *Physical Review B* **102** (3), 035121, 2020	**limited**
6	H. Abdul-Rahman, M. Lemm, A. Lucia, B. Nachtergaele, A. Young, A class of two-dimensional AKLT models with a gap, *Contemporary Mathematics* **741**, 1-21, 2020	**good**
7	M.J. Kastoryano, A. Lucia, D. Perez-Garcia, Locality at the boundary implies gap in the bulk for 2D PEPS, *Communications in Mathematical Physics* **366**, 895-926, 2019	**excellent**
8	M.J. Kastoryano, A. Lucia, Divide and conquer method for proving gaps of frustration free Hamiltonians, *Journal of Statistical Mechanics: Theory and Experiment* **2018** (3), 033105, 2018	**sufficient**
9	J. Bausch, T.S. Cubitt, A. Lucia, D. Perez-Garcia, M.M. Wolf, Size-driven quantum phase transitions, *Proceedings of the National Academy of Sciences* **115** (1), 19-23, 2018	**limited**
10	A. Capel, A. Lucia, D. Perez-Garcia, Superadditivity of quantum relative entropy for general states, *IEEE Transactions on Information Theory* **64** (7), 4758-4765, 2018	**excellent**
11	F.G.S.L. Brandao, T.S. Cubitt, A. Lucia, S. Michalakis, D. Perez-Garcia, Area law for fixed points of rapidly mixing dissipative quantum systems, *Journal of mathematical physics* **56** (10), 2015	**very good**
12	T.S. Cubitt, A. Lucia, S. Michalakis, D. Perez-Garcia, Stability of local quantum dissipative systems, *Communications in Mathematical Physics* **337**, 1275-1315, 2015	**excellent**

Overall collective judgement

QUALITY OF SCIENTIFIC AND/OR PROJECT PRODUCTION, ASSESSED ON THE BASIS OF CRITERIA AND PARAMETERS RECOGNIZED BY THE INTERNATIONAL SCIENTIFIC COMMUNITY OF REFERENCE:
The candidate is author or co-author of 15 works published in international journals, 1 book chapter and 3 preprints. The scientific production is mostly coherent with the themes and methods of mathematical physics.

The overall judgment of the scientific production is **good**. The points assigned are **50**.

DIDACTIC ACTIVITIES CARRIED OUT IN ITALIAN OR FOREIGN UNIVERSITIES OR BODIES:
1 PhD course (teacher);
1,5 MSc and 1 BS courses (teacher);
0,5 MSc and 2,5 BS courses (assistant/tutor);
1 PhD student (advisor), present;
1 PhD student (coadvisor), 2019;
3 MSc and 5 BS students.

The overall judgment of the didactic activity is **excellent**. The points assigned are **20**.

SCIENTIFIC RESPONSIBILITY FOR FUNDED RESEARCH PROJECTS:
1 Ramón y Cajal grant (PI);
1 Spanish grant of the Agencia Estatal de Investigación, Ministerio de Ciencia e Innovación (member).

The overall judgment of the scientific responsibility is **good**. The points assigned are **6.5**.

The degree of knowledge of the English language is very good, as emerging from the fact that the candidate is the main author of publications in international journals and he has given various invited talks at international conferences.

CANDIDATE: **Olgiati Alessandro**

CURRICULUM:
PhD in Mathematical Physics and Geometry, SISSA, Trieste, 2018;
postdoc, CNRS, Laboratoire de Physique et Modélisation des Milieux Condensés, Grenoble, 2018 – 2020;
postdoc, University of Zurich, 2020 – 2024.

Prize "Italian innovation in Switzerland", 2021;
Alexander Vasiliev Award, 2017.

17 invited talks;
14 visits.

Organization of 1 event.

The overall judgment of the curriculum is **excellent**.

SUBMITTED PUBLICATIONS:

No. of publications	Type/Title of Publication	Judgment
1	G. Basti, S. Cenatiempo, A. Olgiati, G. Pasqualetti, B. Schlein, A Second Order Upper Bound for the Ground State Energy of a Hard-Sphere Gas in the Gross–Pitaevskii Regime, *Communications in Mathematical Physics* **399** (1), 1-55, 2023	**excellent**
2	A. Olgiati, N. Rougerie, D. Spehner, Bosons in a double well: two-mode approximation and fluctuations, accepted for publication in *Analysis and PDE*	**excellent**
3	A. Olgiati, N. Rougerie, Stability of the Laughlin phase against long-range interactions, *Archive for Rational Mechanics and Analysis* **237** (3), 1475-1515, 2020	**excellent**
4	A. Olgiati, N. Rougerie, The Hartree functional in a double well, *Journal of Spectral Theory* **11** (4), 1727-1778, 2021	**excellent**
5	D. Dimonte, M. Falconi, A. Olgiati, On some rigorous aspects of fragmented condensation, *Nonlinearity* **34** (1), 1, 2021	**very good**
6	A. Michelangeli, P.T. Nam, A. Olgiati, Ground state energy of mixture of Bose gases, *Reviews in Mathematical Physics* **31** (02), 1950005, 2019	**very good**
7	A. Michelangeli, A. Olgiati, Mean-field quantum dynamics for a mixture of Bose–Einstein condensates, *Analysis and Mathematical Physics* **7**, 377-416, 2017	**very good**
8	A. Michelangeli, A. Olgiati, Gross-Pitaevskii non-linear dynamics for pseudo-spinor condensates, *Journal of Nonlinear Mathematical Physics* **24** (3), 426-464, 2017	**good**
9	A. Michelangeli, A. Olgiati, R. Scandone, Singular Hartree equation in fractional perturbed Sobolev spaces, *Journal of Nonlinear Mathematical Physics* **25** (4), 558-588, 2018	**good**
10	A. Olgiati, Trial states for Bose gases: singular scalings and non-integrable potentials, to appear in the *proceedings of the intensive period "INdAM Quantum Meetings 2022"*	**good**

11	A. Olgiati, Reduced fluctuations for bosons in a double well, *Journal of Mathematical Physics* **63** (7), 2022	**sufficient**
12	G. Basti, S. Cenatiempo, A. Olgiati, G. Pasqualetti, B. Schlein, Ground state energy of a Bose gas in the Gross–Pitaevskii regime, *Journal of Mathematical Physics* **63** (4), 2022	**sufficient**

Overall collective judgement

QUALITY OF SCIENTIFIC AND/OR PROJECT PRODUCTION, ASSESSED ON THE BASIS OF CRITERIA AND PARAMETERS RECOGNIZED BY THE INTERNATIONAL SCIENTIFIC COMMUNITY OF REFERENCE:
The candidate is author or co-author of 13 works published in international journals, 3 book chapters and 1 preprint. The scientific production is entirely coherent with the themes and methods of mathematical physics.

The overall judgment of the scientific production is **very good**. The points assigned are **55**.

DIDACTIC ACTIVITIES CARRIED OUT IN ITALIAN OR FOREIGN UNIVERSITIES OR BODIES:
3 PhD courses (teacher);
1 MSc course and 1 student seminar (teacher);
1 PhD and 1 BS courses (assistant/tutor);
2 PhD students (coadvisor), present;
1 PhD student (coadvisor), 2023.

The overall judgment of the didactic activity is **very good**. The points assigned are **17.5**.

SCIENTIFIC RESPONSIBILITY FOR FUNDED RESEARCH PROJECTS:
1 Marie Skłodowska-Curie Action Seal of Excellence (PI);
2 ERC grants (member);
1 FIR and 1 GNFM Italian grants (member).

The overall judgment of the scientific responsibility is **very good**. The points assigned are **8.5**.

SCRUTINY OF THE DEGREE OF KNOWLEDGE OF THE ENGLISH LANGUAGE:
The degree of knowledge of the English language is very good, as emerging from the fact that the candidate is the main author of publications in international journals and he has given various invited talks at international conferences.

CANDIDATE: **Riccobelli Davide**

CURRICULUM:
PhD in Mathematical Models and Methods in Engineering, Politecnico di Milano, 2018;
postdoc, SISSA, Trieste, 2018 – 2021;
researcher RTDa, Politecnico di Milano 2018 – .

GADeS award 2023 for the PhD thesis;
Research Highlights on the paper D. Riccobelli, H. H. Al-Terke, P. Laaksonen, P. Metrangolo, A. Paananen, R. H. Ras, P. Ciarletta, and D. Vella, "Flattened and wrinkled encapsulated droplets: Shape-morphing induced by gravity and evaporation", *Phys. Rev. Lett.* **130**, 218202, 2023 published on *Nature Reviews Physics* and *Physics*;
2 papers selected as editor's suggestion in *Phys. Rev. Lett.* and *Phys. Rev. E*;
Oberwolfach Leibniz Graduate Students.

18 invited talks;
3 visits as PhD student.

Organization of 1 event and 2 mini-symposia.

The overall judgment of the curriculum is **sufficient**.

SUBMITTED PUBLICATIONS:

No. of publications	Type/Title of Publication	Judgment
1	Su, Y., Riccobelli, D., Chen, Y., Chen, W., & Ciarletta, P. (2023). Tunable morphing of electroactive dielectric-elastomer balloons. *Proceedings of the Royal Society A*, **479**(2276), 20230358	**sufficient**
2	Riccobelli, D., Al-Terke, H. H., Laaksonen, P., Metrangolo, P., Paananen, A., Ras, R. H., Ciarletta, P. & Vella, D. (2023). Flattened and Wrinkled Encapsulated Droplets: Shape Morphing Induced by Gravity and Evaporation. *Physical Review Letters*, **130**(21), 218202	**very good**
3	Ciarletta, P., Pozzi, G., & Riccobelli, D. (2022). The Föppl-von Kármán equations of elastic plates with initial stress. *Royal Society Open Science*, **9**(5), 220421	**sufficient**
4	Riccobelli, D. (2021). Active elasticity drives the formation of periodic beading in damaged axons. *Physical Review E*, **104**(2), 024417	**sufficient**
5	Riccobelli, D., Noselli, G., & DeSimone, A. (2021). Rods coiling about a rigid constraint: helices and perversions. *Proceedings of the Royal Society A*, **477**(2246), 20200817	**sufficient**
6	Riccobelli, D., Noselli, G., Arroyo, M., & DeSimone, A. (2020). Mechanics of axisymmetric sheets of interlocking and slidable rods. *Journal of the Mechanics and Physics of Solids*, **141**, 103969	**limited**
7	Riccobelli, D., & Bevilacqua, G. (2020). Surface tension controls the onset of gyrification in brain organoids. *Journal of the Mechanics and Physics of Solids*, **134**, 103745	**sufficient**
8	Giantesio, G., Musesti, A., & Riccobelli, D. (2019). A comparison between active strain and active stress in transversely isotropic hyperelastic materials. *Journal of Elasticity*, **137**(1), 63-82	**limited**
9	Riccobelli, D., & Ciarletta, P. (2018). Morpho-elastic model of the tortuous tumour vessels. *International Journal of Non-Linear Mechanics*, **107**, 1-9	**limited**
10	Riccobelli, D., Agosti, A., & Ciarletta, P. (2019). On the existence of elastic minimizers for initially stressed materials. *Philosophical Transactions of the Royal Society A*, **377**(2144), 20180074	**good**
11	Riccobelli, D., & Ciarletta, P. (2017). Rayleigh-Taylor instability in soft elastic layers. *Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences*, **375**(2093), 20160421	**sufficient**
12	Ambrosi, D., Pezzuto, S., Riccobelli, D., Stylianopoulos, T., & Ciarletta, P. (2017). Solid tumors are poroelastic solids with a chemo-mechanical feedback on growth. *Journal of Elasticity*, **129**, 107-124	**limited**

Overall collective judgement

QUALITY OF SCIENTIFIC AND/OR PROJECT PRODUCTION, ASSESSED ON THE BASIS OF CRITERIA AND PARAMETERS RECOGNIZED BY THE INTERNATIONAL SCIENTIFIC COMMUNITY OF REFERENCE:
The candidate is author or co-author of 15 works published in international journals. The scientific production is only partially coherent with the themes and methods of mathematical physics.

The overall judgment of the scientific production is **sufficient**. The points assigned are **40**.

DIDACTIC ACTIVITIES CARRIED OUT IN ITALIAN OR FOREIGN UNIVERSITIES OR BODIES:
2 BS courses (teacher);
3 MSc and 4 BS courses (assistant/tutor);
1 MSc student (advisor), present;

2 MSc students (coadvisor), 2022 and 2023.

The overall judgment of the didactic activity is **limited**. The points assigned are **9**.

SCIENTIFIC RESPONSIBILITY FOR FUNDED RESEARCH PROJECTS:
IDEA League Fellowship;
1 Italian PRIN (local coordinator);
1 Italian GFNM (PI);
1 ERC, 1 Italian PRIN, 1 French CNRS (member);
3 Italian GNFM (member);
1 Italian Regione Lombardia NEWMED project (member).

The overall judgment of the scientific responsibility is **good**. The points assigned are **6.5**.

SCRUTINY OF THE DEGREE OF KNOWLEDGE OF THE ENGLISH LANGUAGE:
The degree of knowledge of the English language is very good, as emerging from the fact that the candidate is the main author of publications in international journals and he has given various invited talks at international conferences.

THE SELECTION BOARD

Prof. CORREGGI Michele (Chairman)   _____

Prof. FAUPIN Jérémy (Member)   _____

Prof. SAFFIRIO Chiara (Secretary)   _____

POLITECNICO MILANO 1863

PUBLIC SELECTION ESTABLISHED WITH DIRECTOR'S DECREE NO. 2023_PRA_DMAT_5 OF 18/07/2023 PURSUANT TO THE NOTICE PUBLISHED IN THE OFFICIAL GAZETTE NO. 28/07/2023, n. 57 FOR 1 POSITION AS ASSOCIATE PROFESSOR FOR THE COMPETITION SECTOR 01/A4 - MATHEMATICAL PHYSICS - SDS MAT/07 - MATHEMATICAL PHYSICS, PURSUANT TO ART. 18 - LAW 240/2010, AT THE POLITECNICO DI MILANO - DEPARTMENT OF MATHEMATICS (PROCEDURE CODE 2023_PRA_DMAT_5).

ATTACHMENT No. 2 to the FINAL REPORT

MERIT RANKING

SURNAME AND NAME	Overall score
Olgiati Alessandro	81
Lucia Angelo	76.5

Milan, 23/10/2023

THE SELECTION BOARD

Prof. CORREGGI Michele (Chairman) _____

Prof. FAUPIN Jérémy (Member) _____

Prof. SAFFIRIO Chiara (Secretary) _____