



DELIBERA

Organo	COMITATO PER IL RECLUTAMENTO E LO SVILUPPO DELLE CARRIERE
Data seduta	3 APRILE 2018
Sede	Via Calepina 14, Trento – seduta telematica
Oggetto	Valutazione di ricercatore di cui all'art. 24, comma 3, lett. b), L. 240/2010 ai fini della chiamata nel ruolo di professore associato: dott.ssa Sonia MAZZUCCHI, Dipartimento di Matematica

Sono presenti alla deliberazione:

VALENTINA NIDER	Presidente	P
ALBERTO BELLIN	Componente	P
YURI BOZZI	Componente con funzioni di segretario	P
LUCA NOGLER	Componente	P
RAUL PAOLO SERAPIONI	Componente	P

P = presente; AG = assente giustificato; A = assente

Visto lo Statuto dell'Università degli Studi di Trento emanato con D.R. 167 del 23.04.2012;

Vista la legge 30 dicembre 2010 n. 240 "Norme in materia di organizzazione delle Università, di personale accademico e reclutamento, nonché delega al Governo per incentivare la qualità e l'efficienza del sistema universitario" e in particolare l'art. 24, comma 5;

Visto il Regolamento per il Reclutamento e la progressione di carriera di professori e ricercatori, emanato con D.R. n. 563 del 29 ottobre 2013 e in particolare l'art. 32 "Valutazione dei titolari dei contratti di cui all'art. 20, comma 1, lettera b) del presente Regolamento ai fini della chiamata nel ruolo di professore associato";

Visti i "Criteri per la valutazione dei ricercatori a tempo indeterminato con contratto di cui al comma 3, lettera b), dell'art. 24 della Legge 240/2010, ai fini della chiamata nel ruolo di professore associato", approvati dal Comitato per il Reclutamento e lo Sviluppo delle Carriere nella seduta del 21 luglio 2015;

Vista la delibera del Consiglio del Dipartimento di Matematica del 31.1.2018, con la quale si esprime parere favorevole all'inquadramento della dott.ssa **Sonia Mazzucchi** nel ruolo di professore associato per il settore concorsuale 01/A3 (Analisi matematica, probabilità e statistica matematica) – settore scientifico disciplinare MAT/06 (Probabilità e statistica matematica);

Vista la propria delibera del 27 febbraio 2018, con la quale sono stati individuati i referee esterni chiamati a valutare la maturità scientifica e didattica della dott.ssa **Sonia Mazzucchi** nel ruolo di professore associato per il settore concorsuale 01/A3 (Analisi matematica, probabilità e statistica matematica) – settore scientifico disciplinare MAT/06 (Probabilità e statistica matematica);

Viste le valutazioni espresse dai tre referee sul profilo della dott.ssa **Sonia Mazzucchi**, di cui sono riportati di seguito alcuni estratti:

Referee n.1

The scientific activity of Dr. Sonia Mazzucchi research is mainly devoted to the study of the mathematical theory of infinite dimensional integrals and its applications. Her scientific production consists of 24 articles in journals (some of them are very good journals in the probability area), 4 contributions to books and 9 articles on refereed proceedings. Moreover she is coauthor of a Lectures Notes in Mathematics and author of a monograph on "Mathematical Feynman path integrals and applications".

Integrals over spaces of paths have been introduced in several research fields of physics and mathematics and they are used in many areas like stochastic Schoringer equations, topological quantum field theory, quantum computing, ecc. Besides being very challenging in the probability field, these topics are of great interest not only for the mathematicians but, due to their applications, also to other communities as physicist, computer science, ecc ..

The mathematical tools used in the proofs are sophisticated and from her cv. I understand that dr. Mazzucchi has a good control on them.

In my opinion of particular interest are some results obtained by dr. Mazzucchi and coauthors in a couple of papers written in the past 3 years and published in Stochastic Processes and their Applications which is one of the top journal in probability. These results concern the probabilistic expression for the solution of the Cauchy and boundary value problems of a class of high order heattype equations. In these papers a kind of Feynman-Kac formula is constructed via the scaling limit of random walks in the complex plane. Moreover using these complex random walks, an Ito calculus for the limiting process is established. These results are interesting and the mathematical tools are quite involved.

Dr. Mazzucchi has been invited speaker to international conferences some of them very important as the XIV International Congress of Mathematical Physics and from her cv it emerges clearly that she has been



working with different experts on the field.

Dr Mazzucchi teaching experience seems more than adequate for a young researcher. In summary, my opinion is that the level of research of dr. Mazzucchi is high, she looks very talented and she masters a good variety of mathematical techniques. Over all I think she is mature to become a professor and I have no reservation in recommending her for election to the position of Associate Professor at the University of Trento.

Referee n. 2

Sonia Mazzucchi has started working, in collaboration with Sergio Albeverio, on rigorous approach to Feynman integrals, oscillatory and functional integrals. Then, while continuing such a line of research, she has enlarged her interests obtaining relevant original results on the stochastic representation of higher order parabolic PDEs.

She has a very good scientific production, both by number and by level of publication (in particular in the last years). What is remarkable about her work is that her papers are always based on new ideas and deep understanding of the problem (by the physicist's point of view as well) rather than on improvement of known techniques.

In my opinion Sonia Mazzucchi is a brilliant and consistent researcher that has definitely reached the scientific maturity needed to be promoted to the position of Associate Professor.

Referee n. 3

I am writing about Sonia Mazzucchi. I believe that she is a high level and original mathematician. [I] discuss two main directions of her research activity: the theory of Feynman path integrals and probabilistic representations for solutions of higher order differential equations. The first topic is of great interest for both Mathematics and Physics. Mazzucchi has obtained new results in the theory of Feynman path integrals in collaboration with the famous mathematician S. Albeverio. They have written several papers together and the monograph Albeverio S., Hegh-Krohn R. J., Mazzucchi S., "Mathematical theory of Feynman path integrals. An introduction", Lecture Notes in Mathematics, 2008, which is highly cited (Scholar Google). Mazzucchi has done a substantial contribution to such research. This is confirmed by the fact that she got invitations in important international conferences as invited plenary speaker and invited speaker (among the others we mention "Path integral and Pseudodifferential Operators, RIMS, Kyoto, 2014 and "Feynman integral and harmonic analysis and related topics", NIMS, Daejeon, South Korea, 2015). [...] The second research topic starts with the paper "Probabilistic Representations for the Solution of Higher Order Differential Equations", S. Mazzucchi, International Journal of Partial Differential Equations, 2013. This is a far-reaching paper that opens the possibility for new research directions. It has been followed by other interesting papers of Sonia and collaborators (S. Bonaccorsi, C. Calcaterra and M. D'Ovidio). Mazzucchi has a relevant research experience in international institutions. [...] I have personally attended to some of her talks during conferences. She was always very clear, trying first to explain difficult concepts with clever examples. It seems to me that her teaching activity is very good. She has taught a large number of diversified courses in Mathematics as lecturer and assistant lecturer. It is impressive that she has taught courses in Analysis, Geometry, Probability and Rational Mechanics. Moreover, she has also written together with F. Bigolin a book on Calculus containing several exercises. In my opinion Mazzucchi is a very gifted mathematician, interested in several domains of Mathematics, in particular in Probability and its applications to Physics. In conclusion, I strongly recommend Sonia Mazzucchi for the promotion to associated professor;

Visto il curriculum vitae della dott.ssa **Sonia Mazzucchi**;
Con l'astensione del prof. Serapioni;

Delibera

1. di formulare la seguente valutazione della dott.ssa **Sonia Mazzucchi**, ai fini della chiamata ai sensi dell'art. 24 comma 5, L. 240/2010 nel ruolo di professore associato per il settore concorsuale **01/A3** (Analisi matematica, probabilità e statistica matematica) – settore scientifico disciplinare **MAT/06** (Probabilità e statistica matematica):

*I giudizi espressi dai referee esterni sul contributo scientifico, la qualità dell'attività di ricerca e l'esperienza professionale della dott.ssa **Sonia Mazzucchi**, nonché sulla coerenza del suo profilo con i requisiti attesi per il ruolo di professore di seconda fascia, sono molto positivi.*

*A seguito di attenta valutazione del curriculum e delle pubblicazioni, e sulla base dei giudizi formulati dai referee, il Comitato ritiene il profilo scientifico del candidato pienamente adeguato al ruolo ed esprime parere favorevole alla chiamata della dott.ssa **Sonia Mazzucchi** nel ruolo di professore associato per il settore concorsuale 01/A3 – Analisi Matematica, Probabilità e statistica matematica - settore scientifico disciplinare MAT/06 (Probabilità e statistica matematica).*