



SELEZIONE PUBBLICA INDETTA CON DECRETO DIRETTORIALE 06/07/2017, N. 3941 DI CUI ALL'AVVISO PUBBLICATO SULLA GAZZETTA UFFICIALE 04/08/2017, N.59 PER 1 POSTO DI PROFESSORE DI RUOLO DI II FASCIA PER IL SETTORE CONCORSUALE 08/B2- SCIENZA DELLE COSTRUZIONI - S.S.D. ICAR/08 - SCIENZA DELLE COSTRUZIONI, AI SENSI DELL'ART. 18 - L. 240/2010, PRESSO IL POLITECNICO DI MILANO - DIPARTIMENTO DI INGEGNERIA CIVILE E AMBIENTALE (COD. PROCEDURA 2017/PRA_POS_DICA9).

RELAZIONE FINALE

La Commissione Giudicatrice, nominata con D.R. rep. N. 5075 prot. N. 78665 del 06/09/2017, composta dai seguenti professori:

Prof. TALIERCIO Alberto - Politecnico di Milano;
Prof. DUYSINX Pierre - University of Liege;
Prof. LUND Erik - Aalborg Universitet,

si è riunita il giorno 10/10/2017 alle ore 9.30 per la prima riunione telematica.
Ogni Commissario si è collegato dalla propria postazione elettronica.

In apertura di seduta i componenti della Commissione giudicatrice hanno individuato il Presidente ed il Segretario della Commissione:

PIERRE DUYSINX, PROFESSORE ORDINARIO presso Université de Liège, Presidente;
ALBERTO TALIERCIO, PROFESSORE ORDINARIO presso Politecnico di Milano, Segretario.

Ognuno dei membri della Commissione ha dichiarato di non avere un rapporto di coniugio o di parentela o di affinità fino al IV grado compreso o un rapporto di unione civile tra persone dello stesso sesso, così come regolato dall'Art. 1 della Legge 20.05.2016, n. 76, o siano in stato di convivenza di fatto così come regolato dall'Art. 1 – commi 37 e ss. della Legge 20.05.2016, n. 76 con gli altri componenti della stessa Commissione e che non sussistevano le cause di astensione di cui agli artt. 51 e 52 del c.p.c.

I componenti della Commissione Giudicatrice e il Segretario della stessa hanno dichiarato inoltre, ai sensi dell'art. 35-bis del D.Lgs. 165/2001, di non aver riportato condanne penali, anche con sentenze non passate in giudicato, in reati previsti nel capo I del titolo II del libro secondo del codice penale.

La Commissione ha fissato in tale seduta i criteri e i parametri con i quali è stata effettuata la valutazione, stabilendo il punteggio minimo al di sotto del quale i candidati non sono stati inseriti in graduatoria.

La Commissione si è riunita il giorno 18/10/2017 alle ore 14, per via telematica, per prendere visione dell'elenco dei candidati, che risultavano essere:

- 1) BRUGGI Matteo
- 2) GHISI Aldo Francesco

Ognuno dei componenti della Commissione ha dichiarato di non avere un rapporto di coniugio o di parentela o di affinità fino al IV grado compreso o un rapporto di unione civile tra persone dello stesso sesso, così come regolato dall'Art. 1 della Legge 20.05.2016, n. 76, o siano in stato di convivenza di fatto così come regolato dall'Art. 1 – commi 37 e ss. della Legge 20.05.2016, n. 76 con i candidati e che non sussistevano le cause di astensione di cui all'art 51 c.p.c. e 52 del c.p.c.

La Commissione ha proceduto, dopo adeguata valutazione, all'attribuzione di un punteggio ai singoli criteri stabiliti e un giudizio a ciascuna delle pubblicazioni presentate dai candidati, nonché alla valutazione della conoscenza della lingua straniera.

La Commissione quindi, tenuto conto della somma dei punteggi attribuiti, ha proceduto collegialmente all'espressione di un giudizio in relazione alla quantità e alla qualità delle pubblicazioni, valutando inoltre la produttività complessiva del candidato anche in relazione al periodo di attività.

Tali valutazioni vengono allegate alla presente relazione finale e ne costituiscono parte integrante (allegato n. 1 alla relazione finale).

È stata quindi redatta una graduatoria dei candidati selezionati a svolgere le funzioni didattico-scientifiche per le quali è stata bandita la selezione, in numero pari al massimo a cinque volte il numero dei posti messi a concorso (allegato n. 2 alla relazione finale).

LA COMMISSIONE

Prof. Pierre Duysinx (Presidente)

Prof. Erik Lund (Componente)

Prof. Alberto Taliercio (Segretario)

Erik Lund

AT d'oro



SELEZIONE PUBBLICA INDETTA CON DECRETO DIRETTORIALE 06/07/2017, N. 3941 DI CUI ALL'AVVISO PUBBLICATO SULLA GAZZETTA UFFICIALE 04/08/2017, N.59 PER 1 POSTO DI PROFESSORE DI RUOLO DI II FASCIA PER IL SETTORE CONCORSUALE 08/B2- SCIENZA DELLE COSTRUZIONI - S.S.D. ICAR/08 - SCIENZA DELLE COSTRUZIONI, AI SENSI DELL'ART. 18 - L. 240/2010, PRESSO IL POLITECNICO DI MILANO - DIPARTIMENTO DI INGEGNERIA CIVILE E AMBIENTALE (COD. PROCEDURA 2017/PRA_POS_DICA9).

ALLEGATO n.1 alla RELAZIONE FINALE

CRITERI	Qualità della produzione scientifica	Attività didattica a livello universitario in Italia o all'estero	Responsabilità scientifica per progetti di ricerca finanziati	Coerenza col profilo richiesto	Totale
Bruggi Matteo	40	28	8	20	96
Ghisi Aldo Francesco	32	30	4	12	78

CANDIDATO: Bruggi Matteo

CURRICULUM:

2003: Laurea (con lode) in ing. Civile (UniPV). 2004: Master in Reinforced Concrete Structures (PoliMI). 2008: Dottorato in ing. Civile (Strutture, UniPV). 2004-2011: titolare di assegni di ricerca e PostDoc (UniPV e PoliMI). Dal 2011: ricercatore universitario a tempo indeterminato (SSD ICAR/08) presso il Politecnico di Milano.

Dal 2009 al 2012 e dal 2015 a oggi: partecipante a diversi progetti di ricerca (PRIN, COST, ecc.). Nel 2013 e dal 2016: Responsabile di programmi di ricerca nazionali e internazionali. Ha collaborato o collabora con gruppi di ricerca nazionali (UniPV, PoliMI, UniBS) e internazionali (Université de Liège, University of Sao Paulo, Budapest University of Technology and Economics).

Dal 2005 a oggi è stato relatore o correlatore di elaborati di laurea e tesi di laurea magistrale. E' stato inoltre supervisore delle attività di ricerca di un dottorando straniero in stage al PoliMI (2014 e 2016). Dal 2016 è membro del Collegio dei Docenti del Dottorato in Ingegneria Strutturale, Sismica e Geotecnica del Politecnico di Milano.

E' stato oratore in 28 conferenze internazionali e 15 nazionali. Ha presentato 1 keynote lecture (ECCOMAS 2016), 1 invited lecture (CC 2015), 2 contributi su invito in conferenze internazionali (2015, 2016), 2 seminari su invito (2009, 2011).

Ha trascorso periodi di studio all'estero presso la DTU Denmark (2006-3 mesi), l'Université de Liège (2009, 2010-2 settimane) e la Budapest University of Technology and Economics (2016-1 settimana).

Ha vinto un "AIMETA Junior Prize" (2015) dell'Associazione Italiana di Meccanica teorica e Applicata, il premio "Arnaldo Rancati" dell'Istituto Lombardo, Milano (2010).

E' membro del comitato editoriale di "Mathematical Problems in Engineering" (dal 2017). E' Section Editor di "Periodica Polytechnica Civil Engineering" (dal 2014). E' stato revisore per 29 riviste internazionali (dal 2008). E' stato membro del comitato organizzativo del 4th ECCOMAS Young Investigators Conference and PhD Olympiad (2017).

E' stato membro dell'Editorial Board di 2 conferenze internazionali (CST 2014, CC 2015), Co-Organizzatore di 2 mini-simposi in conferenze internazionali (ENGOPT 2014, CST 2015), revisore per 2 conferenze nazionali (MuRiCo4 2014 e MuRiCo5 2017) e di 2 programmi di ricerca esteri (2014).

I principali campi di ricerca del candidato riguardano: a) ottimizzazione topologica; b) metodi computazionali per l'analisi di strutture in materiale non resistente a trazione e il loro rinforzo ottimale; c) modellazione numerica dello sviluppo di fessure coesive in materiali quasi-fragili; d) sviluppo di elementi finite misti; e) progetto ottimale di sensori e reti di sensori; f) caratterizzazione meccanica del calcestruzzo con aggregati riciclati.

Nella procedura di Abilitazione Scientifica Nazionale a cui ha partecipato, il Candidato ha ottenuto 5 valutazioni positive su 5.

PUBBLICAZIONI PRESENTATE:

Numero pub.	Tipo/Titolo Pubblicazione	Giudizio
1	Paper on WoS and Scopus indexed International Journal / Topology optimization of incompressible media using mixed finite elements	Eccellente
2	Paper on WoS and Scopus indexed International Journal / On an	Ottimo

	alternative approach to stress constraints relaxation in topology optimization	
3	Paper on WoS and Scopus indexed International Journal / On the solution of the checkerboard problem in mixed-FEM topology optimization	Ottimo
4	Paper on WoS and Scopus indexed International Journal / A mixed FEM approach to stress-constrained topology optimization	Ottimo
5	Paper on WoS and Scopus indexed International Journal / Eigenvalue-based optimization of incompressible media using mixed finite elements with application to isolation devices	Eccellente
6	Paper on WoS and Scopus indexed International Journal / Generating strut-and-tie patterns for reinforced concrete structures using topology optimization	Ottimo
7	Paper on WoS and Scopus indexed International Journal / An alternative truly-mixed formulation to solve pressure load problems in topology optimization	Eccellente
8	Paper on WoS and Scopus indexed International Journal / Modeling cohesive-crack growth via a truly-mixed formulation	Eccellente
9	Paper on WoS and Scopus indexed International Journal / Topology optimization for thermal insulation: an application to building engineering	Buono
10	Paper on WoS and Scopus indexed International Journal / A fully adaptive topology optimization algorithm with goal-oriented error control	Ottimo
11	Paper on WoS and Scopus indexed International Journal / A numerical investigation on the size effect of fiber-reinforced concrete specimens in crack propagation	Ottimo
12	Paper on WoS and Scopus indexed International Journal / Topology optimization for minimum weight with compliance and stress constraints	Ottimo
13	Paper on WoS and Scopus indexed International Journal / Maximization of the fundamental eigenfrequency of micropolar solids through topology optimization	Ottimo
14	Paper on WoS and Scopus indexed International Journal / Topology optimization of the fiber-reinforcement retrofitting existing structures	Ottimo
15	Paper on WoS and Scopus indexed International Journal / A stress-based approach to the optimal design of structures with unilateral behavior of material or supports	Ottimo
16	Paper on WoS and Scopus indexed International Journal / Design of the optimal fiber-reinforcement for masonry structures via topology optimization	Ottimo
17	Paper on WoS and Scopus indexed International Journal / Design of masonry blocks with enhanced thermomechanical performances by topology optimization	Eccellente
18	Paper on WoS and Scopus indexed International Journal / Finite element analysis of no-tension structures as a topology optimization problem	Ottimo
19	Paper on WoS and Scopus indexed International Journal / An	Ottimo

	efficient earth magnetic field MEMS sensor: modeling, experimental results, and optimization	
20	Paper on WoS and Scopus indexed International Journal / Optimal FRP reinforcement of masonry walls out-of-plane loaded: A combined homogenization-topology optimization approach complying with masonry strength domain	Ottimo
21	Paper on WoS and Scopus indexed International Journal / Analysis of no-tension structures under monotonic loading through an energy-based method	Ottimo
22	Paper on WoS and Scopus indexed International Journal / Topology optimization with mixed finite elements on regular grids	Eccellente
23	Paper on WoS and Scopus indexed International Journal / A numerical method to generate optimal load paths in plain and reinforced concrete structures	Ottimo
24	Paper on WoS and Scopus indexed International Journal / Optimal strengthening of no-tension structures with externally bonded reinforcing layers or ties	Ottimo
25	Paper on WoS and Scopus indexed International Journal / Synthesis of auxetic structures using optimization of compliant mechanisms and a micropolar material model	Ottimo
	Totale	40 punti

Giudizio collegiale complessivo

QUALITÀ DELLA PRODUZIONE SCIENTIFICA, VALUTATA SULLA BASE DI CRITERI E PARAMETRI RICONOSCIUTI NELLA COMUNITÀ SCIENTIFICA INTERNAZIONALE DI RIFERIMENTO:

Il Candidato risulta complessivamente autore di 44 articoli pubblicati su riviste internazionali indicizzate su Scopus (di cui 7 a nome singolo e 43 indicizzate anche su WoS), 3 capitoli di libro (di cui 1 a nome singolo), 61 articoli su atti di conferenze internazionali e 23 su atti di conferenze nazionali.

Il Candidato presenta 25 articoli, tutti pubblicati su riviste internazionali indicizzate su Scopus e su Web of Science. Di questi, 6 sono a nome singolo, 13 a nome doppio, i restanti con 3 o più autori.

La qualità della produzione scientifica è ottima. In base al database Scopus, l'h-index del candidato è attualmente 14 (11, escluse le autocitazioni), mentre i suoi lavori hanno ottenuto finora 619 citazioni (431 escludendo le autocitazioni). In base al database Web of Science, l'h-index del candidato è 12 e il numero delle citazioni ricevute è 448. La somma degli impact factors delle riviste su cui sono stati pubblicati gli articoli presentati dal candidato, dedotta dal Journal Citation Report (2016), è 71.03.

Nel periodo Ott.-Dic. 2009 è risultato autore di uno dei "Top 25 Hottest Articles" pubblicati sulla rivista "Computers and Structures". Nel periodo Gen.-Dic. 2012 è risultato co-autore di uno degli "Eight most popular papers" pubblicati sulla rivista "Structural and Multidisciplinary Optimization".

ATTIVITÀ DIDATTICA SVOLTA PRESSO ATENEI O ENTI NAZIONALI E STRANIERI:

Nel periodo 2003-2012 il Candidato è stato collaboratore a diversi corsi universitari (UniPV e PoliMI). Dal 2011, il Candidato è stato docente di insegnamenti di laurea triennale e magistrale presso Scuole di Ingegneria e Architettura del Politecnico di Milano, per un totale di 63 CFU. La valutazione della didattica da parte degli studenti, deducibile dal sito web del PoliMI, è sempre risultata "alta". Il Candidato è stato inoltre docente del corso di dottorato "Topology optimization of structures" (Budapest University of Technology and Economics, 2016) e co-docente di un corso sulle Norme Tecniche per le Costruzioni presso l'Ordine degli Ingegneri di Pavia (2009).

RESPONSABILITÀ SCIENTIFICA PER PROGETTI DI RICERCA FINANZIATI:

2013: Principal Investigator del contratto BUD3RICC01 (PoliMI, 6 mesi).

2016-17: Associate Investigator del programma di ricerca 2014/18928-2 finanziato dalla FAPESP (Università di S. Paolo del Brasile).

Da luglio 2017: Principal Investigator del programma di ricerca 2017-0317 finanziato dalla Fondazione Cariplo

COERENZA CON IL PROFILO RICHIESTO:

Alla luce delle esperienze pregresse, il Candidato appare perfettamente in linea col profilo richiesto nel Bando.

ACCERTAMENTO DEL GRADO DI CONOSCENZA DELLA LINGUA INGLESE:

Sulla base della valutazione della qualità dei testi degli articoli in lingua inglese prodotti dal Candidato, si ritiene che il suo grado di conoscenza sia ottimo.

CANDIDATO: Ghisi Aldo Francesco

CURRICULUM:

1999: Laurea in ing. Civile (PoliMI). 2005: Dottorato in ing. Strutturale (PoliMI). 2001-2004 e 2005-2010: titolare di borse di studio (PoliMI). Dal 2011: ricercatore universitario a tempo indeterminato (SSD ICAR/08).

Dal 2000 al 2001 ha lavorato come ingegnere nel settore R&D della ABB.

Dal 2010 a oggi: partecipante a diversi progetti di ricerca (PRIN, LAB4MEMS, ecc.). Nel 2013 e nel 2016: responsabile locale di un progetto di ricerca nazionale sulle risorse di calcolo. Ha collaborato o collabora con gruppi di ricerca nazionali (PoliMI, STMicroelectronics, ecc.).

Dal 2007 a oggi è stato relatore o correlatore di elaborati di laurea e tesi di laurea magistrale, oltre che correlatore di una tesi di dottorato. Dal 2016 è membro del Collegio dei Docenti del Dottorato in Ingegneria Strutturale, Sismica e Geotecnica del Politecnico di Milano.

E' stato oratore in 8 conferenze internazionali e 7 nazionali.

Ha trascorso periodi di studio all'estero presso il MIT (2009-2 mesi), l'University of Siegen (2009-2 settimane) e l'IMC Centre di Leuven (2008-09, brevi periodi).

Ha ricevuto una borsa di studio dell'Istituto Italiano di Fisica Nucleare di 2 anni (1997-99).

E' stato revisore per 14 riviste internazionali (dal 2011).

I principali campi di ricerca del candidato riguardano: a) ingegneria criogenica e frattura a basse temperature; b) metodi numerici per l'identificazione dei parametri costitutivi in presenza di interfacce anelastiche; c) ingegneria delle dighe; d) Micro-Electro Mechanical Systems; e) meccanica dei solidi policristallini.

Nella procedura di Abilitazione Scientifica Nazionale a cui ha partecipato, il Candidato ha ottenuto 4 valutazioni positive su 5.

PUBBLICAZIONI PRESENTATE:

Numero pub.	Tipo/Titolo Pubblicazione	Giudizio
1	Paper on WoS and Scopus indexed International Journal / On the dynamics of a high frequency oscillator for mechanical watches	Ottimo
2	Paper on WoS and Scopus indexed International Journal / Stress verification of large concrete existing dams: comparison of two seismic Italian codes	Sufficiente
3	Paper on WoS and Scopus indexed International Journal / 8-Node solid-shell elements selective mass scaling for explicit dynamic analysis of layered thin-walled structures	Ottimo
4	Paper on WoS and Scopus indexed International Journal / A domain decomposition approach for the simulation of fracture phenomena in polycrystalline microsystems	Eccellente
5	Paper on WoS and Scopus indexed International Journal / A three-scale approach to the numerical simulation of metallic bonding for MEMS packaging	Buono
6	Paper on WoS and Scopus indexed International Journal / A resonant micro accelerometer based on electrostatic stiffness variation	Ottimo
7	Paper on WoS and Scopus indexed International Journal / A domain decomposition method for the simulation of fracture in polysilicon MEMS	Buono
8	Paper on WoS and Scopus indexed International Journal / Physically-based reduced order modelling of a uni-axial polysilicon MEMS accelerometer.	Ottimo
9	Paper on WoS and Scopus indexed International Journal / Parallelized sigma-point Kalman filtering for structural dynamics	Ottimo
10	Book Chapter / Multi scale simulation of shock-induced failure of polysilicon MEMS	Buono
11	Paper on WoS and Scopus indexed International Journal / Two-scale simulation of drop-induced failure of polysilicon MEMS sensors	Ottimo
12	Paper on WoS and Scopus indexed International Journal / Overall	Buono

	elastic properties of polysilicon films: a statistical investigation of the effects of polycrystal morphology	
13	Paper on WoS and Scopus indexed International Journal / Monte Carlo simulation of micro-cracking in polysilicon MEMS exposed to shocks	Ottimo
14	Paper on WoS and Scopus indexed International Journal / A microsystem for the fracture characterization of polysilicon at the microscale	Ottimo
15	Paper on WoS and Scopus indexed International Journal / Polysilicon MEMS accelerometers exposed to shocks: numerical-experimental investigation	Buono
16	Paper on Scopus indexed International Journal / A finite element flux-corrected transport method for wave propagation in heterogeneous solids	Scarso
17	Paper on WoS and Scopus indexed International Journal / Modeling impact-induced failure of polysilicon MEMS: a multi scale approach	Ottimo
18	Paper on WoS and Scopus indexed International Journal / On a deterministic approach for the evaluation of gas damping in inertial MEMS in the free-molecule regime	Ottimo
19	Paper on WoS and Scopus indexed International Journal / Multi-scale analysis of polysilicon MEMS sensors subject to accidental drops: effect of packaging	Buono
20	Paper on WoS and Scopus indexed International Journal / A new on-chip test structure for real time fatigue analysis in polysilicon MEMS	Buono
21	Paper on WoS and Scopus indexed International Journal / A three-scale FE approach to reliability analysis of MEMS sensors subject to impacts	Ottimo
22	Paper on WoS and Scopus indexed International Journal / Mechanical characterization of Ti-5Al-2.5Sn ELI alloy at cryogenic and room temperatures	Ottimo
23	Paper on WoS and Scopus indexed International Journal / Multi-scale analysis of MEMS sensors subject to drop impacts	Ottimo
24	Paper on WoS and Scopus indexed International Journal / Analysis of gas flow in MEMS by a deterministic 3D BGK model	Sufficiente
25	Paper on WoS and Scopus indexed International Journal / Unscented Kalman filter for nonlinear structural dynamics	Eccellente
	Totale	32 punti

Giudizio collegiale complessivo

QUALITÀ DELLA PRODUZIONE SCIENTIFICA, VALUTATA SULLA BASE DI CRITERI E PARAMETRI RICONOSCIUTI NELLA COMUNITÀ SCIENTIFICA INTERNAZIONALE DI RIFERIMENTO:

Il Candidato risulta complessivamente autore di 25 articoli pubblicati su riviste internazionali indicizzate su Scopus (nessuna a nome singolo e 23 indicizzate anche su WoS), coautore di 1 libro e 1 capitolo di libro, 36 articoli su atti di conferenze internazionali e 19 su atti di conferenze nazionali. Il Candidato presenta 24 articoli e 1 capitolo di libro. 1 degli articoli non è su rivista indicizzata su WoS, 3 risultano "conference papers" in base a Scopus, i rimanenti sono pubblicati su riviste internazionali indicizzate su Scopus e Web of Science. Nessuno dei lavori presentati è a nome singolo. La qualità della produzione scientifica è buona. In base al database Scopus, l'h-index del candidato è attualmente 12 (10, escluse le autocitazioni), mentre i suoi lavori hanno ottenuto finora 410 citazioni (299 escludendo le autocitazioni). In base al database Web of Science, l'h-index del candidato è 12 e il numero delle citazioni ricevute è 322. La somma degli impact factors delle riviste su cui sono stati pubblicati gli articoli presentati dal candidato, dedotta dal Journal Citation Report (2016), è 50.02.

ATTIVITÀ DIDATTICA SVOLTA PRESSO ATENEI O ENTI NAZIONALI E STRANIERI:

Nel periodo 2001-2015 il Candidato è stato collaboratore a diversi corsi universitari (PoliMI). Dal 2007, il Candidato è stato docente di insegnamenti di laurea triennale e magistrale presso la Scuola di Architettura del Politecnico di Milano, per un totale di 70 CFU. La valutazione della didattica da

parte degli studenti, deducibile dal sito web del PoliMI, è risultata "alta" o, in un caso, "media". Ha anche tenuto 3 seminari in un corso di dottorato (2007, 2009) e al CISM (2007).

RESPONSABILITÀ SCIENTIFICA PER PROGETTI DI RICERCA FINANZIATI:

Nel 2013 e nel 2016: Responsabile del progetto LISA finanziato da Regione Lombardia e CINECA.

COERENZA CON IL PROFILO RICHIESTO:

Alla luce delle esperienze pregresse, il Candidato appare solo parzialmente coerente col profilo richiesto nel Bando.

ACCERTAMENTO DEL GRADO DI CONOSCENZA DELLA LINGUA INGLESE:

Sulla base della valutazione della qualità dei testi degli articoli in lingua inglese prodotti dal Candidato, si ritiene che il suo grado di conoscenza sia ottimo.

LA COMMISSIONE

Prof. Pierre Duysinx (Presidente)

Prof. Erik Lund (Componente)

Prof. Alberto Taliercio (Segretario)

Erik Lund

AT vero



SELEZIONE PUBBLICA INDETTA CON DECRETO DIRETTORIALE 06/07/2017, N. 3941 DI CUI ALL'AVVISO PUBBLICATO SULLA GAZZETTA UFFICIALE 04/08/2017, N.59 PER 1 POSTO DI PROFESSORE DI RUOLO DI II FASCIA PER IL SETTORE CONCORSUALE 08/B2- SCIENZA DELLE COSTRUZIONI - S.S.D. ICAR/08 - SCIENZA DELLE COSTRUZIONI, AI SENSI DELL'ART. 18 - L. 240/2010, PRESSO IL POLITECNICO DI MILANO - DIPARTIMENTO DI INGEGNERIA CIVILE E AMBIENTALE (COD. PROCEDURA 2017/PRA_POS_DICA9).

ALLEGATO n. 2 alla RELAZIONE FINALE

GRADUATORIA DI MERITO

COGNOME E NOME	Punteggio complessivo
BRUGGI MATTEO	96
GHISI ALDO FRANCESCO	78

Milano, 18 Ottobre 2017

LA COMMISSIONE

Prof. Pierre Duysinx (Presidente)

Prof. Erik Lund (Componente)

Prof. Alberto Taliercio (Segretario)

Erik Lund

ATaliercio



SELEZIONE PUBBLICA INDETTA CON DECRETO DIRETTORIALE 06/07/2017, N. 3941 DI CUI ALL'AVVISO PUBBLICATO SULLA GAZZETTA UFFICIALE 04/08/2017, N.59 PER 1 POSTO DI PROFESSORE DI RUOLO DI II FASCIA PER IL SETTORE CONCORSUALE 08/B2- SCIENZA DELLE COSTRUZIONI - S.S.D. ICAR/08 - SCIENZA DELLE COSTRUZIONI, AI SENSI DELL'ART. 18 - L. 240/2010, PRESSO IL POLITECNICO DI MILANO - DIPARTIMENTO DI INGEGNERIA CIVILE E AMBIENTALE (COD. PROCEDURA 2017/PRA_POS_DICA9).

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Prof. DUYSINX Pierre - University of Liege;
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si è riunita il giorno 10/10/2017 alle ore 9.30 per la prima riunione telematica.
Ogni Commissario si è collegato dalla propria postazione elettronica.

In apertura di seduta i componenti della Commissione giudicatrice hanno individuato il Presidente ed il Segretario della Commissione:

PIERRE DUYSINX, PROFESSORE ORDINARIO presso Université de Liège, Presidente;
ALBERTO TALIERCIO, PROFESSORE ORDINARIO presso Politecnico di Milano, Segretario.

Ognuno dei membri della Commissione ha dichiarato di non avere un rapporto di coniugio o di parentela o di affinità fino al IV grado compreso o un rapporto di unione civile tra persone dello stesso sesso, così come regolato dall'Art. 1 della Legge 20.05.2016, n. 76, o siano in stato di convivenza di fatto così come regolato dall'Art. 1 – commi 37 e ss. della Legge 20.05.2016, n. 76 con gli altri componenti della stessa Commissione e che non sussistevano le cause di astensione di cui agli artt. 51 e 52 del c.p.c.

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La Commissione si è riunita il giorno 18/10/2017 alle ore 14, per via telematica, per prendere visione dell'elenco dei candidati, che risultavano essere:

- 1) BRUGGI Matteo
- 2) GHISI Aldo Francesco

Ognuno dei componenti della Commissione ha dichiarato di non avere un rapporto di coniugio o di parentela o di affinità fino al IV grado compreso o un rapporto di unione civile tra persone dello stesso sesso, così come regolato dall'Art. 1 della Legge 20.05.2016, n. 76, o siano in stato di convivenza di fatto così come regolato dall'Art. 1 – commi 37 e ss. della Legge 20.05.2016, n. 76 con i candidati e che non sussistevano le cause di astensione di cui all'art 51 c.p.c. e 52 del c.p.c.

La Commissione ha proceduto, dopo adeguata valutazione, all'attribuzione di un punteggio ai singoli criteri stabiliti e un giudizio a ciascuna delle pubblicazioni presentate dai candidati, nonché alla valutazione della conoscenza della lingua straniera.

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La Commissione quindi, tenuto conto della somma dei punteggi attribuiti, ha proceduto collegialmente all'espressione di un giudizio in relazione alla quantità e alla qualità delle pubblicazioni, valutando inoltre la produttività complessiva del candidato anche in relazione al periodo di attività.

Tali valutazioni vengono allegate alla presente relazione finale e ne costituiscono parte integrante (allegato n. 1 alla relazione finale).

È stata quindi redatta una graduatoria dei candidati selezionati a svolgere le funzioni didattico-scientifiche per le quali è stata bandita la selezione, in numero pari al massimo a cinque volte il numero dei posti messi a concorso (allegato n. 2 alla relazione finale).


LA COMMISSIONE

Prof. Pierre Duysinx (Presidente)



Prof. Erik Lund (Componente)

Prof. Alberto Taliercio (Segretario)





SELEZIONE PUBBLICA INDETTA CON DECRETO DIRETTORIALE 06/07/2017, N. 3941 DI CUI ALL'AVVISO PUBBLICATO SULLA GAZZETTA UFFICIALE 04/08/2017, N.59 PER 1 POSTO DI PROFESSORE DI RUOLO DI II FASCIA PER IL SETTORE CONCORSUALE 08/B2- SCIENZA DELLE COSTRUZIONI - S.S.D. ICAR/08 - SCIENZA DELLE COSTRUZIONI, AI SENSI DELL'ART. 18 - L. 240/2010, PRESSO IL POLITECNICO DI MILANO - DIPARTIMENTO DI INGEGNERIA CIVILE E AMBIENTALE (COD. PROCEDURA 2017/PRA_POS_DICA9).

ALLEGATO n.1 alla RELAZIONE FINALE

CRITERI	Qualità della produzione scientifica	Attività didattica a livello universitario in Italia o all'estero	Responsabilità scientifica per progetti di ricerca finanziati	Coerenza col profilo richiesto	Totale
Bruggi Matteo	40	28	8	20	96
Ghisi Aldo Francesco	32	30	4	12	78

CANDIDATO: Bruggi Matteo

CURRICULUM:

2003: Laurea (con lode) in ing. Civile (UniPV). 2004: Master in Reinforced Concrete Structures (PoliMI). 2008: Dottorato in ing. Civile (Strutture, UniPV). 2004-2011: titolare di assegni di ricerca e PostDoc (UniPV e PoliMI). Dal 2011: ricercatore universitario a tempo indeterminato (SSD ICAR/08) presso il Politecnico di Milano.

Dal 2009 al 2012 e dal 2015 a oggi: partecipante a diversi progetti di ricerca (PRIN, COST, ecc.). Nel 2013 e dal 2016: Responsabile di programmi di ricerca nazionali e internazionali. Ha collaborato o collabora con gruppi di ricerca nazionali (UniPV, PoliMI, UniBS) e internazionali (Université de Liège, University of Sao Paulo, Budapest University of Technology and Economics).

Dal 2005 a oggi è stato relatore o correlatore di elaborati di laurea e tesi di laurea magistrale. E' stato inoltre supervisore delle attività di ricerca di un dottorando straniero in stage al PoliMI (2014 e 2016). Dal 2016 è membro del Collegio dei Docenti del Dottorato in Ingegneria Strutturale, Sismica e Geotecnica del Politecnico di Milano.

E' stato oratore in 28 conferenze internazionali e 15 nazionali. Ha presentato 1 keynote lecture (ECCOMAS 2016), 1 invited lecture (CC 2015), 2 contributi su invito in conferenze internazionali (2015, 2016), 2 seminari su invito (2009, 2011).

Ha trascorso periodi di studio all'estero presso la DTU Denmark (2006-3 mesi), l'Université de Liège (2009, 2010-2 settimane) e la Budapest University of Technology and Economics (2016-1 settimana).

Ha vinto un "AIMETA Junior Prize" (2015) dell'Associazione Italiana di Meccanica teorica e Applicata, il premio "Arnaldo Rancati" dell'Istituto Lombardo, Milano (2010).

E' membro del comitato editoriale di "Mathematical Problems in Engineering" (dal 2017). E' Section Editor di "Periodica Polytechnica Civil Engineering" (dal 2014). E' stato revisore per 29 riviste internazionali (dal 2008). E' stato membro del comitato organizzativo del 4th ECCOMAS Young Investigators Conference and PhD Olympiad (2017).

E' stato membro dell'Editorial Board di 2 conferenze internazionali (CST 2014, CC 2015), Co-Organizzatore di 2 mini-simposi in conferenze internazionali (ENGOPT 2014, CST 2015), revisore per 2 conferenze nazionali (MuRiCo4 2014 e MuRiCo5 2017) e di 2 programmi di ricerca esteri (2014).

I principali campi di ricerca del candidato riguardano: a) ottimizzazione topologica; b) metodi computazionali per l'analisi di strutture in materiale non resistente a trazione e il loro rinforzo ottimale; c) modellazione numerica dello sviluppo di fessure coesive in materiali quasi-fragili; d) sviluppo di elementi finite misti; e) progetto ottimale di sensori e reti di sensori; f) caratterizzazione meccanica del calcestruzzo con aggregati riciclati.

Nella procedura di Abilitazione Scientifica Nazionale a cui ha partecipato, il Candidato ha ottenuto 5 valutazioni positive su 5.

PUBBLICAZIONI PRESENTATE:

Numero pub.	Tipo/Titolo Pubblicazione	Giudizio
1	Paper on WoS and Scopus indexed International Journal / Topology optimization of incompressible media using mixed finite elements	Eccellente
2	Paper on WoS and Scopus indexed International Journal / On an	Ottimo

	alternative approach to stress constraints relaxation in topology optimization	
3	Paper on WoS and Scopus indexed International Journal / On the solution of the checkerboard problem in mixed-FEM topology optimization	Ottimo
4	Paper on WoS and Scopus indexed International Journal / A mixed FEM approach to stress-constrained topology optimization	Ottimo
5	Paper on WoS and Scopus indexed International Journal / Eigenvalue-based optimization of incompressible media using mixed finite elements with application to isolation devices	Eccellente
6	Paper on WoS and Scopus indexed International Journal / Generating strut-and-tie patterns for reinforced concrete structures using topology optimization	Ottimo
7	Paper on WoS and Scopus indexed International Journal / An alternative truly-mixed formulation to solve pressure load problems in topology optimization	Eccellente
8	Paper on WoS and Scopus indexed International Journal / Modeling cohesive-crack growth via a truly-mixed formulation	Eccellente
9	Paper on WoS and Scopus indexed International Journal / Topology optimization for thermal insulation: an application to building engineering	Buono
10	Paper on WoS and Scopus indexed International Journal / A fully adaptive topology optimization algorithm with goal-oriented error control	Ottimo
11	Paper on WoS and Scopus indexed International Journal / A numerical investigation on the size effect of fiber-reinforced concrete specimens in crack propagation	Ottimo
12	Paper on WoS and Scopus indexed International Journal / Topology optimization for minimum weight with compliance and stress constraints	Ottimo
13	Paper on WoS and Scopus indexed International Journal / Maximization of the fundamental eigenfrequency of micropolar solids through topology optimization	Ottimo
14	Paper on WoS and Scopus indexed International Journal / Topology optimization of the fiber-reinforcement retrofitting existing structures	Ottimo
15	Paper on WoS and Scopus indexed International Journal / A stress-based approach to the optimal design of structures with unilateral behavior of material or supports	Ottimo
16	Paper on WoS and Scopus indexed International Journal / Design of the optimal fiber-reinforcement for masonry structures via topology optimization	Ottimo
17	Paper on WoS and Scopus indexed International Journal / Design of masonry blocks with enhanced thermomechanical performances by topology optimization	Eccellente
18	Paper on WoS and Scopus indexed International Journal / Finite element analysis of no-tension structures as a topology optimization problem	Ottimo
19	Paper on WoS and Scopus indexed International Journal / An	Ottimo

	efficient earth magnetic field MEMS sensor: modeling, experimental results, and optimization	
20	Paper on WoS and Scopus indexed International Journal / Optimal FRP reinforcement of masonry walls out-of-plane loaded: A combined homogenization-topology optimization approach complying with masonry strength domain	Ottimo
21	Paper on WoS and Scopus indexed International Journal / Analysis of no-tension structures under monotonic loading through an energy-based method	Ottimo
22	Paper on WoS and Scopus indexed International Journal / Topology optimization with mixed finite elements on regular grids	Eccellente
23	Paper on WoS and Scopus indexed International Journal / A numerical method to generate optimal load paths in plain and reinforced concrete structures	Ottimo
24	Paper on WoS and Scopus indexed International Journal / Optimal strengthening of no-tension structures with externally bonded reinforcing layers or ties	Ottimo
25	Paper on WoS and Scopus indexed International Journal / Synthesis of auxetic structures using optimization of compliant mechanisms and a micropolar material model	Ottimo
	Totale	40 punti

Giudizio collegiale complessivo

QUALITÀ DELLA PRODUZIONE SCIENTIFICA, VALUTATA SULLA BASE DI CRITERI E PARAMETRI RICONOSCIUTI NELLA COMUNITÀ SCIENTIFICA INTERNAZIONALE DI RIFERIMENTO:

Il Candidato risulta complessivamente autore di 44 articoli pubblicati su riviste internazionali indicizzate su Scopus (di cui 7 a nome singolo e 43 indicizzate anche su WoS), 3 capitoli di libro (di cui 1 a nome singolo), 61 articoli su atti di conferenze internazionali e 23 su atti di conferenze nazionali.

Il Candidato presenta 25 articoli, tutti pubblicati su riviste internazionali indicizzate su Scopus e su Web of Science. Di questi, 6 sono a nome singolo, 13 a nome doppio, i restanti con 3 o più autori.

La qualità della produzione scientifica è ottima. In base al database Scopus, l'h-index del candidato è attualmente 14 (11, escluse le autocitazioni), mentre i suoi lavori hanno ottenuto finora 619 citazioni (431 escludendo le autocitazioni). In base al database Web of Science, l'h-index del candidato è 12 e il numero delle citazioni ricevute è 448. La somma degli impact factors delle riviste su cui sono stati pubblicati gli articoli presentati dal candidato, dedotta dal Journal Citation Report (2016), è 71.03.

Nel periodo Ott.-Dic. 2009 è risultato autore di uno dei "Top 25 Hottest Articles" pubblicati sulla rivista "Computers and Structures". Nel periodo Gen.-Dic. 2012 è risultato co-autore di uno degli "Eight most popular papers" pubblicati sulla rivista "Structural and Multidisciplinary Optimization".

ATTIVITÀ DIDATTICA SVOLTA PRESSO ATENEI O ENTI NAZIONALI E STRANIERI:

Nel periodo 2003-2012 il Candidato è stato collaboratore a diversi corsi universitari (UniPV e PoliMI). Dal 2011, il Candidato è stato docente di insegnamenti di laurea triennale e magistrale presso Scuole di Ingegneria e Architettura del Politecnico di Milano, per un totale di 63 CFU. La valutazione della didattica da parte degli studenti, deducibile dal sito web del PoliMI, è sempre risultata "alta". Il Candidato è stato inoltre docente del corso di dottorato "Topology optimization of structures" (Budapest University of Technology and Economics, 2016) e co-docente di un corso sulle Norme Tecniche per le Costruzioni presso l'Ordine degli Ingegneri di Pavia (2009).

RESPONSABILITÀ SCIENTIFICA PER PROGETTI DI RICERCA FINANZIATI:

2013: Principal Investigator del contratto BUD3RICCO1 (PoliMI, 6 mesi).

2016-17: Associate Investigator del programma di ricerca 2014/18928-2 finanziato dalla FAPESP (Università di S. Paolo del Brasile).

Da luglio 2017: Principal Investigator del programma di ricerca 2017-0317 finanziato dalla Fondazione Cariplo

COERENZA CON IL PROFILO RICHIESTO:

Alla luce delle esperienze pregresse, il Candidato appare perfettamente in linea col profilo richiesto nel Bando.

ACCERTAMENTO DEL GRADO DI CONOSCENZA DELLA LINGUA INGLESE:

Sulla base della valutazione della qualità dei testi degli articoli in lingua inglese prodotti dal Candidato, si ritiene che il suo grado di conoscenza sia ottimo.

CANDIDATO: Ghisi Aldo Francesco

CURRICULUM:

1999: Laurea in ing. Civile (PoliMI). 2005: Dottorato in ing. Strutturale (PoliMI). 2001-2004 e 2005-2010: titolare di borse di studio (PoliMI). Dal 2011: ricercatore universitario a tempo indeterminato (SSD ICAR/08).

Dal 2000 al 2001 ha lavorato come ingegnere nel settore R&D della ABB.

Dal 2010 a oggi: partecipante a diversi progetti di ricerca (PRIN, LAB4MEMS, ecc.). Nel 2013 e nel 2016: responsabile locale di un progetto di ricerca nazionale sulle risorse di calcolo. Ha collaborato o collabora con gruppi di ricerca nazionali (PoliMI, STMicroelectronics, ecc.).

Dal 2007 a oggi è stato relatore o correlatore di elaborati di laurea e tesi di laurea magistrale, oltre che correlatore di una tesi di dottorato. Dal 2016 è membro del Collegio dei Docenti del Dottorato in Ingegneria Strutturale, Sismica e Geotecnica del Politecnico di Milano.

E' stato oratore in 8 conferenze internazionali e 7 nazionali.

Ha trascorso periodi di studio all'estero presso il MIT (2009-2 mesi), l'University of Siegen (2009-2 settimane) e l'IMC Centre di Leuven (2008-09, brevi periodi).

Ha ricevuto una borsa di studio dell'Istituto Italiano di Fisica Nucleare di 2 anni (1997-99).

E' stato revisore per 14 riviste internazionali (dal 2011).

I principali campi di ricerca del candidato riguardano: a) ingegneria criogenica e frattura a basse temperature; b) metodi numerici per l'identificazione dei parametri costitutivi in presenza di interfacce anelastiche; c) ingegneria delle dighe; d) Micro-Electro Mechanical Systems; e) meccanica dei solidi policristallini.

Nella procedura di Abilitazione Scientifica Nazionale a cui ha partecipato, il Candidato ha ottenuto 4 valutazioni positive su 5.

PUBBLICAZIONI PRESENTATE:

Numero pub.	Tipo/Titolo Pubblicazione	Giudizio
1	Paper on WoS and Scopus indexed International Journal / On the dynamics of a high frequency oscillator for mechanical watches	Ottimo
2	Paper on WoS and Scopus indexed International Journal / Stress verification of large concrete existing dams: comparison of two seismic Italian codes	Sufficiente
3	Paper on WoS and Scopus indexed International Journal / 8-Node solid-shell elements selective mass scaling for explicit dynamic analysis of layered thin-walled structures	Ottimo
4	Paper on WoS and Scopus indexed International Journal / A domain decomposition approach for the simulation of fracture phenomena in polycrystalline microsystems	Eccellente
5	Paper on WoS and Scopus indexed International Journal / A three-scale approach to the numerical simulation of metallic bonding for MEMS packaging	Buono
6	Paper on WoS and Scopus indexed International Journal / A resonant micro accelerometer based on electrostatic stiffness variation	Ottimo
7	Paper on WoS and Scopus indexed International Journal / A domain decomposition method for the simulation of fracture in polysilicon MEMS	Buono
8	Paper on WoS and Scopus indexed International Journal / Physically-based reduced order modelling of a uni-axial polysilicon MEMS accelerometer.	Ottimo
9	Paper on WoS and Scopus indexed International Journal / Parallelized sigma-point Kalman filtering for structural dynamics	Ottimo
10	Book Chapter / Multi scale simulation of shock-induced failure of polysilicon MEMS	Buono
11	Paper on WoS and Scopus indexed International Journal / Two-scale simulation of drop-induced failure of polysilicon MEMS sensors	Ottimo
12	Paper on WoS and Scopus indexed International Journal / Overall	Buono

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	elastic properties of polysilicon films: a statistical investigation of the effects of polycrystal morphology	
13	Paper on WoS and Scopus indexed International Journal / Monte Carlo simulation of micro-cracking in polysilicon MEMS exposed to shocks	Ottimo
14	Paper on WoS and Scopus indexed International Journal / A microsystem for the fracture characterization of polysilicon at the microscale	Ottimo
15	Paper on WoS and Scopus indexed International Journal / Polysilicon MEMS accelerometers exposed to shocks: numerical-experimental investigation	Buono
16	Paper on Scopus indexed International Journal / A finite element flux-corrected transport method for wave propagation in heterogeneous solids	Scarso
17	Paper on WoS and Scopus indexed International Journal / Modeling impact-induced failure of polysilicon MEMS: a multi scale approach	Ottimo
18	Paper on WoS and Scopus indexed International Journal / On a deterministic approach for the evaluation of gas damping in inertial MEMS in the free-molecule regime	Ottimo
19	Paper on WoS and Scopus indexed International Journal / Multi-scale analysis of polysilicon MEMS sensors subject to accidental drops: effect of packaging	Buono
20	Paper on WoS and Scopus indexed International Journal / A new on-chip test structure for real time fatigue analysis in polysilicon MEMS	Buono
21	Paper on WoS and Scopus indexed International Journal / A three-scale FE approach to reliability analysis of MEMS sensors subject to impacts	Ottimo
22	Paper on WoS and Scopus indexed International Journal / Mechanical characterization of Ti-5Al-2.5Sn ELI alloy at cryogenic and room temperatures	Ottimo
23	Paper on WoS and Scopus indexed International Journal / Multi-scale analysis of MEMS sensors subject to drop impacts	Ottimo
24	Paper on WoS and Scopus indexed International Journal / Analysis of gas flow in MEMS by a deterministic 3D BGK model	Sufficiente
25	Paper on WoS and Scopus indexed International Journal / Unscented Kalman filter for nonlinear structural dynamics	Eccellente
	Totale	32 punti

Giudizio collegiale complessivo

QUALITÀ DELLA PRODUZIONE SCIENTIFICA, VALUTATA SULLA BASE DI CRITERI E PARAMETRI RICONOSCIUTI NELLA COMUNITÀ SCIENTIFICA INTERNAZIONALE DI RIFERIMENTO:

Il Candidato risulta complessivamente autore di 25 articoli pubblicati su riviste internazionali indicizzate su Scopus (nessuna a nome singolo e 23 indicizzate anche su WoS), coautore di 1 libro e 1 capitolo di libro, 36 articoli su atti di conferenze internazionali e 19 su atti di conferenze nazionali. Il Candidato presenta 24 articoli e 1 capitolo di libro. 1 degli articoli non è su rivista indicizzata su WoS, 3 risultano "conference papers" in base a Scopus, i rimanenti sono pubblicati su riviste internazionali indicizzate su Scopus e Web of Science. Nessuno dei lavori presentati è a nome singolo. La qualità della produzione scientifica è buona. In base al database Scopus, l'h-index del candidato è attualmente 12 (10, escluse le autocitazioni), mentre i suoi lavori hanno ottenuto finora 410 citazioni (299 escludendo le autocitazioni). In base al database Web of Science, l'h-index del candidato è 12 e il numero delle citazioni ricevute è 322. La somma degli impact factors delle riviste su cui sono stati pubblicati gli articoli presentati dal candidato, dedotta dal Journal Citation Report (2016), è 50.02.

ATTIVITÀ DIDATTICA SVOLTA PRESSO ATENEI O ENTI NAZIONALI E STRANIERI:

Nel periodo 2001-2015 il Candidato è stato collaboratore a diversi corsi universitari (PoliMI). Dal 2007, il Candidato è stato docente di insegnamenti di laurea triennale e magistrale presso la Scuola di Architettura del Politecnico di Milano, per un totale di 70 CFU. La valutazione della didattica da

parte degli studenti, deducibile dal sito web del PoliMI, è risultata "alta" o, in un caso, "media". Ha anche tenuto 3 seminari in un corso di dottorato (2007, 2009) e al CISM (2007).

RESPONSABILITÀ SCIENTIFICA PER PROGETTI DI RICERCA FINANZIATI:

Nel 2013 e nel 2016: Responsabile del progetto LISA finanziato da Regione Lombardia e CINECA.

COERENZA CON IL PROFILO RICHIESTO:

Alla luce delle esperienze pregresse, il Candidato appare solo parzialmente coerente col profilo richiesto nel Bando.

ACCERTAMENTO DEL GRADO DI CONOSCENZA DELLA LINGUA INGLESE:

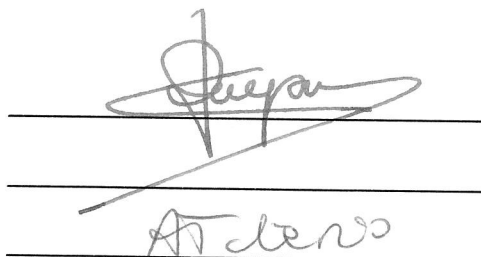
Sulla base della valutazione della qualità dei testi degli articoli in lingua inglese prodotti dal Candidato, si ritiene che il suo grado di conoscenza sia ottimo.

LA COMMISSIONE

Prof. Pierre Duysinx (Presidente)

Prof. Erik Lund (Componente)

Prof. Alberto Taliercio (Segretario)



The image shows three horizontal lines representing signature lines. The top line has a handwritten signature that appears to be 'Duysinx'. The middle line is empty. The bottom line has a handwritten signature that appears to be 'Taliercio'.



SELEZIONE PUBBLICA INDETTA CON DECRETO DIRETTORIALE 06/07/2017, N. 3941 DI CUI ALL'AVVISO PUBBLICATO SULLA GAZZETTA UFFICIALE 04/08/2017, N.59 PER 1 POSTO DI PROFESSORE DI RUOLO DI II FASCIA PER IL SETTORE CONCORSUALE 08/B2- SCIENZA DELLE COSTRUZIONI - S.S.D. ICAR/08 - SCIENZA DELLE COSTRUZIONI, AI SENSI DELL'ART. 18 - L. 240/2010, PRESSO IL POLITECNICO DI MILANO - DIPARTIMENTO DI INGEGNERIA CIVILE E AMBIENTALE (COD. PROCEDURA 2017/PRA_POS_DICA9).

ALLEGATO n. 2 alla RELAZIONE FINALE

GRADUATORIA DI MERITO

COGNOME E NOME	Punteggio complessivo
BRUGGI MATTEO	96
GHISI ALDO FRANCESCO	78

Milano, 18 Ottobre 2017

LA COMMISSIONE

Prof. Pierre Duysinx (Presidente)

Prof. Erik Lund (Componente)

Prof. Alberto Taliercio (Segretario)

The image shows three horizontal lines representing signature lines. The top line has a signature that appears to be 'Pierre Duysinx'. The middle line has a signature that appears to be 'Erik Lund'. The bottom line has a signature that appears to be 'Alberto Taliercio'.



PUBLIC SELECTION ESTABLISHED WITH DIRECTOR'S DECREE NO. 2017/PRA_POS_DICA9 OF 06/07/2017 PURSUANT TO THE NOTICE PUBLISHED IN THE OFFICIAL GAZETTE NO. 04/08/2017, n.59 FOR 1 POSITION AS ASSOCIATE PROFESSOR FOR THE COMPETITION SECTOR 08/B2 - STRUCTURAL MECHANICS - SDS ICAR/08 - STRUCTURAL MECHANICS, PURSUANT TO ART. 18 - LAW 240/2010, AT THE POLITECNICO DI MILANO - DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING (PROCEDURE CODE 2017/PRA_POS_DICA9).

FINAL REPORT

The Selection Board, appointed with RD Index No. 5075 ref. No. 78665 of 06 September 2017, composed by the following Professors:

Prof. TALIERCIO Alberto - Politecnico di Milano;
Prof. DUYSINX Pierre - University of Liege;
Prof. LUND Erik - Aalborg Universitet,

met on October 10, 2017, at 9.30 AM 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 Board:

PIERRE DUYSINX, FULL PROFESSOR, at the Université de Liège, Chairman;
ALBERTO TALIERCIO, FULL PROFESSOR at the Politecnico di Milano, Secretary.

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

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

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

On October 18, 2017, at 2.00 PM, the Selection Board met for the second teleconference meeting, to inspect the list of applicants, who were:

- 1) BRUGGI Matteo
- 2) GHISI Aldo 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.

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 candidate; 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 his/her period of activity.

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

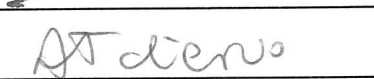
The Board drew up, according to the majority of its members, a ranking of candidates selected to carry out the scientific/teaching functions for which the selection was called, in a number equal to a maximum of five times the number of positions available in the competition (Annex No. 2 to this report).

THE BOARD

Prof. Pierre Duysinx (Chairman)



Prof. Erik Lund (Member)



Prof. Alberto Taliercio (Secretary)





PUBLIC SELECTION ESTABLISHED WITH DIRECTOR'S DECREE NO. 2017/PRA_POS_DICA9 OF 06/07/2017 PURSUANT TO THE NOTICE PUBLISHED IN THE OFFICIAL GAZETTE NO. 04/08/2017, n.59 FOR 1 POSITION AS ASSOCIATE PROFESSOR FOR THE COMPETITION SECTOR 08/B2 - STRUCTURAL MECHANICS - SDS ICAR/08 - STRUCTURAL MECHANICS, PURSUANT TO ART. 18 - LAW 240/2010, AT THE POLITECNICO DI MILANO - DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING (PROCEDURE CODE 2017/PRA_POS_DICA9).

ANNEX 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
Bruggi Matteo	40	28	8	20	96
Ghisi Aldo Francesco	32	30	4	12	78

APPLICANT: Bruggi Matteo

CURRICULUM:

2003: MSc in Civil Engineering (with honors) (UniPV). 2004: Master in Reinforced Concrete Structures (PoliMI). 2008: PhD in Civil Engineering (Structures, UniPV). 2004-2011: grants as research assistant or Post-Doc (UniPV and PoliMI). Since 2011: assistant professor in Structural Mechanics (SSD ICAR/08) at PoliMI.

2009 to 2012 and 2015 to date: membership of various research programs (PRIN, COST, etc.). In 2013 and since 2016: Principal or associate investigator in national and international research programs. He is cooperating, or has cooperated, with national (UniPV, PoliMI, UniBS) and international (Université de Liège, University of Sao Paulo, Budapest University of Technology and Economics) research groups.

Since 2005, he supervised or co-supervised BSc final projects and MSc dissertations. He also supervised the research activities of a foreign PhD student during his stages at PoliMI (2014, 2016). Since 2016 he is a member of the Board of the PhD Programme in "Structural, Earthquake and Geotechnical Engineering" of PoliMI.

Speaker in 28 international conferences and 15 national conferences. Speaker at 1 keynote lecture (ECCOMAS 2016), 1 invited lecture (CC 2015), 2 invited contributions at international conferences (2015, 2016), 2 invited seminars (2009, 2011), 2 seminars (2012 and 2016).

He spent periods abroad at the DTU Denmark (2006-3 months), Université de Liège (2009, 2010-2 weeks) and Budapest University of Technology and Economics (2016-1 week).

He was awarded of one of the "AIMETA Junior Prizes" (2015) by the Italian Association of Theoretical and Applied Mechanics, and the "Arnaldo Rancati Prize" by the Istituto Lombardo, Milan (2010).

Since 2017, he is a member of the Editorial Board of "Mathematical Problems in Engineering". Since 2014 he is Section Editor of "Periodica Polytechnica Civil Engineering". Since 2008, he has been reviewer for 29 international journals. He was a member of the organizing committee of the 4th ECCOMAS Young Investigators Conference and PhD Olympiad (2017).

He was a member of the Editorial Board of 2 international conferences (CST 2014, CC 2015), Co-Organizer of 2 mini-symposia in international conferences (ENGOPT 2014, CST 2015), reviewer for 2 national conferences (MuRiCo4 2014, MuRiCo5 2017) and 2 research programs in foreign countries (2014).

His main fields of research are a) topology optimization; b) computational methods for the analysis and the optimal reinforcement of no-tension structures; c) numerical modelling of the propagation of cohesive cracks in quasi-brittle materials; d) mixed finite elements; e) optimal design of sensors and sensor networks; f) mechanical characterization of concrete with recycled aggregates.

In the National Scientific Qualification Procedure, the Applicant got 5 positive evaluations out of 5.

SUBMITTED PUBLICATIONS:

No. of publications	Type/Title of Publication	Judgment
1	Paper on WoS and Scopus indexed International Journal /	Excellent

	Topology optimization of incompressible media using mixed finite elements	
2	Paper on WoS and Scopus indexed International Journal / On an alternative approach to stress constraints relaxation in topology optimization	Very good
3	Paper on WoS and Scopus indexed International Journal / On the solution of the checkerboard problem in mixed-FEM topology optimization	Very good
4	Paper on WoS and Scopus indexed International Journal / A mixed FEM approach to stress-constrained topology optimization	Very good
5	Paper on WoS and Scopus indexed International Journal / Eigenvalue-based optimization of incompressible media using mixed finite elements with application to isolation devices	Excellent
6	Paper on WoS and Scopus indexed International Journal / Generating strut-and-tie patterns for reinforced concrete structures using topology optimization	Very good
7	Paper on WoS and Scopus indexed International Journal / An alternative truly-mixed formulation to solve pressure load problems in topology optimization	Excellent
8	Paper on WoS and Scopus indexed International Journal / Modeling cohesive-crack growth via a truly-mixed formulation	Excellent
9	Paper on WoS and Scopus indexed International Journal / Topology optimization for thermal insulation: an application to building engineering	Good
10	Paper on WoS and Scopus indexed International Journal / A fully adaptive topology optimization algorithm with goal-oriented error control	Very good
11	Paper on WoS and Scopus indexed International Journal / A numerical investigation on the size effect of fiber-reinforced concrete specimens in crack propagation	Very good
12	Paper on WoS and Scopus indexed International Journal / Topology optimization for minimum weight with compliance and stress constraints	Very good
13	Paper on WoS and Scopus indexed International Journal / Maximization of the fundamental eigenfrequency of micropolar solids through topology optimization	Very good
14	Paper on WoS and Scopus indexed International Journal / Topology optimization of the fiber-reinforcement retrofitting existing structures	Very good
15	Paper on WoS and Scopus indexed International Journal / A stress-based approach to the optimal design of structures with unilateral behavior of material or supports	Very good
16	Paper on WoS and Scopus indexed International Journal / Design of the optimal fiber-reinforcement for masonry structures via topology optimization	Very good
17	Paper on WoS and Scopus indexed International Journal / Design of masonry blocks with enhanced thermomechanical performances by topology optimization	Excellent

18	Paper on WoS and Scopus indexed International Journal / Finite element analysis of no-tension structures as a topology optimization problem	Very good
19	Paper on WoS and Scopus indexed International Journal / An efficient earth magnetic field MEMS sensor: modeling, experimental results, and optimization	Very good
20	Paper on WoS and Scopus indexed International Journal / Optimal FRP reinforcement of masonry walls out-of-plane loaded: A combined homogenization-topology optimization approach complying with masonry strength domain	Very good
21	Paper on WoS and Scopus indexed International Journal / Analysis of no-tension structures under monotonic loading through an energy-based method	Very good
22	Paper on WoS and Scopus indexed International Journal / Topology optimization with mixed finite elements on regular grids	Excellent
23	Paper on WoS and Scopus indexed International Journal / A numerical method to generate optimal load paths in plain and reinforced concrete structures	Very good
24	Paper on WoS and Scopus indexed International Journal / Optimal strengthening of no-tension structures with externally bonded reinforcing layers or ties	Very good
25	Paper on WoS and Scopus indexed International Journal / Synthesis of auxetic structures using optimization of compliant mechanisms and a micropolar material model	Very good
	Total	40 points

Overall collective judgement

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

The Applicant has globally authored or co-authored 44 papers published on Scopus-indexed international journals (7 of which are single-authored papers, and 43 are also WoS-indexed), 3 book chapters (1 of which is single-authored), 61 papers published in proceedings of international conferences, and 23 in proceedings of national conferences.

The Applicant submits 25 papers, published on Scopus- and WoS-indexed international journals. 6 of them are single-authored, 13 are double-authored, and the remaining ones are co-authored by 3 authors or more.

The quality of the scientific production is very good. According to the Scopus database, the current h-index of the Applicant is 14 (11, excluding self-citations); so far, the papers published by the Applicant got 619 citations (431 excluding self-citations). According to the Web of Science database, his h-index is 12 and the number of citations is 448. The sum of the impact factors of the journals on which the Applicant published the submitted papers, according to the Journal Citation Report (2016), is 71.03.

From October to December 2009, the Applicant was one of the authors of the "Top 25 Hottest Articles" published on "Computers and Structures". From January to December 2012 he was the co-author of one of the "Eight most popular papers" published on "Structural and Multidisciplinary Optimization".

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

From 2003 to 2012 the Applicant assisted the teaching activities of several University courses (at UniPV and PoliMI). Since 2011, he taught several BSc and MSc courses at the Schools of Architecture and Engineering of PoliMI, for a total of 63 ECTS. According to the evaluation by the students, the quality of the lessons of the Applicant is "high" (PoliMi website). The Applicant also lectured the PhD course "Topology optimization of structures" at the Budapest University of Technology and Economics (2016) and co-lecturer of a course on building codes at the Society of Professional Engineers of Pavia (2009).

SCIENTIFIC RESPONSIBILITY FOR FUNDED RESEARCH PROJECTS:

2013: Principal Investigator of the research contract BUD3RICC01 at PoliMI

2016-17: Associate Investigator of the research program 2014/18928-2 funded by FAPESP (University of Sao Paulo, Brazil)

2017 to date: Principal Investigator of the research program 2017-0317, funded by Fondazione Cariplo

CONSISTENCY WITH THE REQUIRED PROFILE:

AT P

According to his previous experiences, the Applicant fully matches the profile outlined in the competition Notice

SCRUTINY OF THE DEGREE OF KNOWLEDGE OF THE ENGLISH LANGUAGE:

According to the quality of the text of the papers written in English and submitted by the Applicant, his degree of knowledge of the English language is considered to be very good.

APPLICANT: Ghisi Aldo Francesco

CURRICULUM:

1999: MSc in Civil Engineering (PoliMI). 2005: PhD in Structural Engineering (PoliMI). 2001-2004 and 2005-2010: grants at PoliMI. Since 2011: assistant professor in Structural Mechanics (SSD ICAR/08) at PoliMI.

From 2000 to 2001, R&D engineer at ABB.

Since 2010: membership of various research programs (PRIN, LAB4MEMS, etc.). In 2013 and 2016: local leader of a national project on computer resources. He is cooperating, or has cooperated, with national research groups (PoliMI, STMicroelectronics, etc.).

Since 2007, he has supervised or co-supervised BSc final projects and MSc dissertations. He was also co-supervisor of a PhD thesis. Since 2016 he is a member of the Board of the PhD Programme in "Structural, Earthquake and Geotechnical Engineering" of PoliMI.

Speaker in 8 international conferences and 7 national conferences.

He spent periods abroad at the MIT (2009-2 months), University of Siegen (2009-2 weeks) and IMC Center in Leuven (2008-09, short visits).

He was awarded of a two-year scholarship by the Italian Institute of Nuclear Physics (1997-99).

Since 2011, he has been reviewer for 14 international journals.

His main fields of research are a) Cryogenic engineering and fracture at low temperatures; b) Numerical methods and tools for parameter identification in nonlinear constitutive models in elastic bodies with inelastic interfaces; c) Dam engineering; d) Micro-Electro Mechanical Systems; e) Mechanics of Polycrystalline solids.

In the National Scientific Qualification Procedure, the Applicant got 4 positive evaluations out of 5.

SUBMITTED PUBLICATIONS:

No. of publications	Type/Title of Publication	Judgment
1	Paper on WoS and Scopus indexed International Journal / On the dynamics of a high frequency oscillator for mechanical watches	Very good
2	Paper on WoS and Scopus indexed International Journal / Stress verification of large concrete existing dams: comparison of two seismic Italian codes	Satisfactory
3	Paper on WoS and Scopus indexed International Journal / 8-Node solid-shell elements selective mass scaling for explicit dynamic analysis of layered thin-walled structures	Very good
4	Paper on WoS and Scopus indexed International Journal / A domain decomposition approach for the simulation of fracture phenomena in polycrystalline microsystems	Excellent
5	Paper on WoS and Scopus indexed International Journal / A three-scale approach to the numerical simulation of metallic bonding for MEMS packaging	Good
6	Paper on WoS and Scopus indexed International Journal / A resonant micro accelerometer based on electrostatic stiffness variation	Very good
7	Paper on WoS and Scopus indexed International Journal / A domain decomposition method for the simulation of fracture in polysilicon MEMS	Good
8	Paper on WoS and Scopus indexed International Journal / Physically-based reduced order modelling of a uni-axial polysilicon MEMS accelerometer.	Very good
9	Paper on WoS and Scopus indexed International Journal / Parallelized sigma-point Kalman filtering for structural dynamics	Very good

10	Book Chapter / Multi scale simulation of shock-induced failure of polysilicon MEMS	Good
11	Paper on WoS and Scopus indexed International Journal / Two-scale simulation of drop-induced failure of polysilicon MEMS sensors	Very good
12	Paper on WoS and Scopus indexed International Journal / Overall elastic properties of polysilicon films: a statistical investigation of the effects of polycrystal morphology	Good
13	Paper on WoS and Scopus indexed International Journal / Monte Carlo simulation of micro-cracking in polysilicon MEMS exposed to shocks	Very good
14	Paper on WoS and Scopus indexed International Journal / A microsystem for the fracture characterization of polysilicon at the microscale	Very good
15	Paper on WoS and Scopus indexed International Journal / Polysilicon MEMS accelerometers exposed to shocks: numerical-experimental investigation	Good
16	Paper on Scopus indexed International Journal / A finite element flux-corrected transport method for wave propagation in heterogeneous solids	Poor
17	Paper on WoS and Scopus indexed International Journal / Modeling impact-induced failure of polysilicon MEMS: a multi scale approach	Very good
18	Paper on WoS and Scopus indexed International Journal / On a deterministic approach for the evaluation of gas damping in inertial MEMS in the free-molecule regime	Very good
19	Paper on WoS and Scopus indexed International Journal / Multi-scale analysis of polysilicon MEMS sensors subject to accidental drops: effect of packaging	Good
20	Paper on WoS and Scopus indexed International Journal / A new on- chip test structure for real time fatigue analysis in polysilicon MEMS	Good
21	Paper on WoS and Scopus indexed International Journal / A three-scale FE approach to reliability analysis of MEMS sensors subject to impacts	Very good
22	Paper on WoS and Scopus indexed International Journal / Mechanical characterization of Ti-5Al-2.5Sn ELI alloy at cryogenic and room temperatures	Very good
23	Paper on WoS and Scopus indexed International Journal / Multi-scale analysis of MEMS sensors subject to drop impacts	Very good
24	Paper on WoS and Scopus indexed International Journal / Analysis of gas flow in MEMS by a deterministic 3D BGK model	Satisfactory
25	Paper on WoS and Scopus indexed International Journal / Unscented Kalman filter for nonlinear structural dynamics	Excellent
	Total	32 points

Overall collective judgement

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

The Applicant has globally authored 25 papers published on Scopus-indexed international journals (none of which is single-authored, and 23 of which are also WoS-indexed). He co-authored 1 book , 1 book chapter, 36 papers published in proceedings of international conferences, and 19 in proceedings of national conferences.

The Applicant submits 24 papers and 1 book chapter. 1 of the papers is from a non-WoS-indexed journal. 3 papers are "conference papers" according to Scopus. The remaining papers are published on Scopus- and WoS-indexed international journals. None of the submitted papers is single-authored.

The quality of the scientific production is good. According to the Scopus database, the current h-index of the Applicant is 12 (10, excluding self-citations); so far, the papers published by the Applicant got 410 citations (299 excluding self-citations). According to the Web of Science database, his h-index is 12 and the number of citations is 322. The sum of the impact factors of the journals on which the Applicant published the submitted papers, according to the Journal Citation Report (2016), is 50.02.

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

From 2001 to 2015 the Applicant assisted the teaching activities of several University courses (at PoliMI). Since 2007, he taught several BSc and MSc courses at the School of Architecture of PoliMI, for a total of 70 ECTS. According to the evaluation by the students, the quality of the lessons of the Applicant is "high" or, in one case, "average" (PoliMi website). He also gave 3 seminars in a PhD course (2007, 2009) and in a CISM course (2007).

SCIENTIFIC RESPONSIBILITY FOR FUNDED RESEARCH PROJECTS:

In 2013 and 2016: local leader of LISA project, calculation resources granted from Lombardy Region and CINECA.

CONSISTENCY WITH THE REQUIRED PROFILE:

According to his previous experiences, the Applicant only partially matches the profile outlined in the competition Notice

SCRUTINY OF THE DEGREE OF KNOWLEDGE OF THE ENGLISH LANGUAGE:

According to the quality of the text of the papers written in English and submitted by the Applicant , his degree of knowledge of the English language is considered to be very good.

THE BOARD


Prof. Pierre Duysinx (Chairman)



Prof. Erik Lund (Member)



Prof. Alberto Taliercio (Secretary)





PUBLIC SELECTION ESTABLISHED WITH DIRECTOR'S DECREE NO. 2017/PRA_POS_DICA9 OF 06/07/2017 PURSUANT TO THE NOTICE PUBLISHED IN THE OFFICIAL GAZETTE NO. 04/08/2017, n.59 FOR 1 POSITION AS ASSOCIATE PROFESSOR FOR THE COMPETITION SECTOR 08/B2 - STRUCTURAL MECHANICS - SDS ICAR/08 - STRUCTURAL MECHANICS, PURSUANT TO ART. 18 - LAW 240/2010, AT THE POLITECNICO DI MILANO - DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING (PROCEDURE CODE 2017/PRA_POS_DICA9).

ANNEX No. 2 to the FINAL REPORT


MERIT RANKING

SURNAME AND NAME	Overall score
BRUGGI MATTEO	96
GHISI ALDO FRANCESCO	78

Milan, October 18, 2017

THE BOARD

Prof. Pierre Duysinx (Chairman)



Prof. Erik Lund (Member)

Prof. Alberto Taliercio (Secretary)

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PUBLIC SELECTION ESTABLISHED WITH DIRECTOR'S DECREE NO. 2017/PRA_POS_DICA9 OF 06/07/2017 PURSUANT TO THE NOTICE PUBLISHED IN THE OFFICIAL GAZETTE NO. 04/08/2017, n.59 FOR 1 POSITION AS ASSOCIATE PROFESSOR FOR THE COMPETITION SECTOR 08/B2 - STRUCTURAL MECHANICS - SDS ICAR/08 - STRUCTURAL MECHANICS, PURSUANT TO ART. 18 - LAW 240/2010, AT THE POLITECNICO DI MILANO - DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING (PROCEDURE CODE 2017/PRA_POS_DICA9).

FINAL REPORT

The Selection Board, appointed with RD Index No. 5075 ref. No. 78665 of 06 September 2017, composed by the following Professors:

Prof. TALIERCIO Alberto - Politecnico di Milano;
Prof. DUYSINX Pierre - University of Liege;
Prof. LUND Erik - Aalborg Universitet,

met on October 10, 2017, at 9.30 AM 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 Board:

PIERRE DUYSINX, FULL PROFESSOR, at the Université de Liège, Chairman;
ALBERTO TALIERCIO, FULL PROFESSOR at the Politecnico di Milano, Secretary.

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

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

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

On October 18, 2017, at 2.00 PM, the Selection Board met for the second teleconference meeting, to inspect the list of applicants, who were:

- 1) BRUGGI Matteo
- 2) GHISI Aldo 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.

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 candidate; 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 his/her period of activity.

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

The 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 (Annex No. 2 to this report).

THE BOARD

Prof. Pierre Duysinx (Chairman)

Prof. Erik Lund (Member)

Prof. Alberto Taliercio (Secretary)

Erik Lund

AT Taliercio



PUBLIC SELECTION ESTABLISHED WITH DIRECTOR'S DECREE NO. 2017/PRA_POS_DICA9 OF 06/07/2017 PURSUANT TO THE NOTICE PUBLISHED IN THE OFFICIAL GAZETTE NO. 04/08/2017, n.59 FOR 1 POSITION AS ASSOCIATE PROFESSOR FOR THE COMPETITION SECTOR 08/B2 - STRUCTURAL MECHANICS - SDS ICAR/08 - STRUCTURAL MECHANICS, PURSUANT TO ART. 18 - LAW 240/2010, AT THE POLITECNICO DI MILANO - DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING (PROCEDURE CODE 2017/PRA_POS_DICA9).

ANNEX 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
Bruggi Matteo	40	28	8	20	96
Ghisi Aldo Francesco	32	30	4	12	78

APPLICANT: Bruggi Matteo

CURRICULUM:

2003: MSc in Civil Engineering (with honors) (UniPV). 2004: Master in Reinforced Concrete Structures (PoliMI). 2008: PhD in Civil Engineering (Structures, UniPV). 2004-2011: grants as research assistant or Post-Doc (UniPV and PoliMI). Since 2011: assistant professor in Structural Mechanics (SSD ICAR/08) at PoliMI.

2009 to 2012 and 2015 to date: membership of various research programs (PRIN, COST, etc.). In 2013 and since 2016: Principal or associate investigator in national and international research programs. He is cooperating, or has cooperated, with national (UniPV, PoliMI, UniBS) and international (Université de Liège, University of Sao Paulo, Budapest University of Technology and Economics) research groups.

Since 2005, he supervised or co-supervised BSc final projects and MSc dissertations. He also supervised the research activities of a foreign PhD student during his stages at PoliMI (2014, 2016). Since 2016 he is a member of the Board of the PhD Programme in "Structural, Earthquake and Geotechnical Engineering" of PoliMI.

Speaker in 28 international conferences and 15 national conferences. Speaker at 1 keynote lecture (ECCOMAS 2016), 1 invited lecture (CC 2015), 2 invited contributions at international conferences (2015, 2016), 2 invited seminars (2009, 2011), 2 seminars (2012 and 2016).

He spent periods abroad at the DTU Denmark (2006-3 months), Université de Liège (2009, 2010-2 weeks) and Budapest University of Technology and Economics (2016-1 week).

He was awarded of one of the "AIMETA Junior Prizes" (2015) by the Italian Association of Theoretical and Applied Mechanics, and the "Arnaldo Rancati Prize" by the Istituto Lombardo, Milan (2010).

Since 2017, he is a member of the Editorial Board of "Mathematical Problems in Engineering". Since 2014 he is Section Editor of "Periodica Polytechnica Civil Engineering". Since 2008, he has been reviewer for 29 international journals. He was a member of the organizing committee of the 4th ECCOMAS Young Investigators Conference and PhD Olympiad (2017).

He was a member of the Editorial Board of 2 international conferences (CST 2014, CC 2015), Co-Organizer of 2 mini-symposia in international conferences (ENGOPT 2014, CST 2015), reviewer for 2 national conferences (MuRiCo4 2014, MuRiCo5 2017) and 2 research programs in foreign countries (2014).

His main fields of research are a) topology optimization; b) computational methods for the analysis and the optimal reinforcement of no-tension structures; c) numerical modelling of the propagation of cohesive cracks in quasi-brittle materials; d) mixed finite elements; e) optimal design of sensors and sensor networks; f) mechanical characterization of concrete with recycled aggregates.

In the National Scientific Qualification Procedure, the Applicant got 5 positive evaluations out of 5.

SUBMITTED PUBLICATIONS:

No. of publications	Type/Title of Publication	Judgment
1	Paper on WoS and Scopus indexed International Journal /	Excellent

	Topology optimization of incompressible media using mixed finite elements	
2	Paper on WoS and Scopus indexed International Journal / On an alternative approach to stress constraints relaxation in topology optimization	Very good
3	Paper on WoS and Scopus indexed International Journal / On the solution of the checkerboard problem in mixed-FEM topology optimization	Very good
4	Paper on WoS and Scopus indexed International Journal / A mixed FEM approach to stress-constrained topology optimization	Very good
5	Paper on WoS and Scopus indexed International Journal / Eigenvalue-based optimization of incompressible media using mixed finite elements with application to isolation devices	Excellent
6	Paper on WoS and Scopus indexed International Journal / Generating strut-and-tie patterns for reinforced concrete structures using topology optimization	Very good
7	Paper on WoS and Scopus indexed International Journal / An alternative truly-mixed formulation to solve pressure load problems in topology optimization	Excellent
8	Paper on WoS and Scopus indexed International Journal / Modeling cohesive-crack growth via a truly-mixed formulation	Excellent
9	Paper on WoS and Scopus indexed International Journal / Topology optimization for thermal insulation: an application to building engineering	Good
10	Paper on WoS and Scopus indexed International Journal / A fully adaptive topology optimization algorithm with goal-oriented error control	Very good
11	Paper on WoS and Scopus indexed International Journal / A numerical investigation on the size effect of fiber-reinforced concrete specimens in crack propagation	Very good
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13	Paper on WoS and Scopus indexed International Journal / Maximization of the fundamental eigenfrequency of micropolar solids through topology optimization	Very good
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20	Paper on WoS and Scopus indexed International Journal / Optimal FRP reinforcement of masonry walls out-of-plane loaded: A combined homogenization-topology optimization approach complying with masonry strength domain	Very good
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24	Paper on WoS and Scopus indexed International Journal / Optimal strengthening of no-tension structures with externally bonded reinforcing layers or ties	Very good
25	Paper on WoS and Scopus indexed International Journal / Synthesis of auxetic structures using optimization of compliant mechanisms and a micropolar material model	Very good
	Total	40 points

Overall collective judgement

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

The Applicant has globally authored or co-authored 44 papers published on Scopus-indexed international journals (7 of which are single-authored papers, and 43 are also WoS-indexed), 3 book chapters (1 of which is single-authored), 61 papers published in proceedings of international conferences, and 23 in proceedings of national conferences.

The Applicant submits 25 papers, published on Scopus- and WoS-indexed international journals. 6 of them are single-authored, 13 are double-authored, and the remaining ones are co-authored by 3 authors or more.

The quality of the scientific production is very good. According to the Scopus database, the current h-index of the Applicant is 14 (11, excluding self-citations); so far, the papers published by the Applicant got 619 citations (431 excluding self-citations). According to the Web of Science database, his h-index is 12 and the number of citations is 448. The sum of the impact factors of the journals on which the Applicant published the submitted papers, according to the Journal Citation Report (2016), is 71.03.

From October to December 2009, the Applicant was one of the authors of the "Top 25 Hottest Articles" published on "Computers and Structures". From January to December 2012 he was the co-author of one of the "Eight most popular papers" published on "Structural and Multidisciplinary Optimization".

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

From 2003 to 2012 the Applicant assisted the teaching activities of several University courses (at UniPV and PoliMI). Since 2011, he taught several BSc and MSc courses at the Schools of Architecture and Engineering of PoliMI, for a total of 63 ECTS. According to the evaluation by the students, the quality of the lessons of the Applicant is "high" (PoliMI website). The Applicant also lectured the PhD course "Topology optimization of structures" at the Budapest University of Technology and Economics (2016) and co-lecturer of a course on building codes at the Society of Professional Engineers of Pavia (2009).

SCIENTIFIC RESPONSIBILITY FOR FUNDED RESEARCH PROJECTS:

2013: Principal Investigator of the research contract BUD3RICCO1 at PoliMI

2016-17: Associate Investigator of the research program 2014/18928-2 funded by FAPESP (University of Sao Paulo, Brazil)

2017 to date: Principal Investigator of the research program 2017-0317, funded by Fondazione Cariplo

CONSISTENCY WITH THE REQUIRED PROFILE:

According to his previous experiences, the Applicant fully matches the profile outlined in the competition Notice

SCRUTINY OF THE DEGREE OF KNOWLEDGE OF THE ENGLISH LANGUAGE:

According to the quality of the text of the papers written in English and submitted by the Applicant, his degree of knowledge of the English language is considered to be very good.

APPLICANT: Ghisi Aldo Francesco

CURRICULUM:

1999: MSc in Civil Engineering (PoliMI). 2005: PhD in Structural Engineering (PoliMI). 2001-2004 and 2005-2010: grants at PoliMI. Since 2011: assistant professor in Structural Mechanics (SSD ICAR/08) at PoliMI.

From 2000 to 2001, R&D engineer at ABB.

Since 2010: membership of various research programs (PRIN, LAB4MEMS, etc.). In 2013 and 2016: local leader of a national project on computer resources. He is cooperating, or has cooperated, with national research groups (PoliMI, STMicroelectronics, etc.).

Since 2007, he has supervised or co-supervised BSc final projects and MSc dissertations. He was also co-supervisor of a PhD thesis. Since 2016 he is a member of the Board of the PhD Programme in "Structural, Earthquake and Geotechnical Engineering" of PoliMI.

Speaker in 8 international conferences and 7 national conferences.

He spent periods abroad at the MIT (2009-2 months), University of Siegen (2009-2 weeks) and IMC Center in Leuven (2008-09, short visits).

He was awarded of a two-year scholarship by the Italian Institute of Nuclear Physics (1997-99).

Since 2011, he has been reviewer for 14 international journals.

His main fields of research are a) Cryogenic engineering and fracture at low temperatures; b) Numerical methods and tools for parameter identification in nonlinear constitutive models in elastic bodies with inelastic interfaces; c) Dam engineering; d) Micro-Electro Mechanical Systems; e) Mechanics of Polycrystalline solids.

In the National Scientific Qualification Procedure, the Applicant got 4 positive evaluations out of 5.

SUBMITTED PUBLICATIONS:

No. of publications	Type/Title of Publication	Judgment
1	Paper on WoS and Scopus indexed International Journal / On the dynamics of a high frequency oscillator for mechanical watches	Very good
2	Paper on WoS and Scopus indexed International Journal / Stress verification of large concrete existing dams: comparison of two seismic Italian codes	Satisfactory
3	Paper on WoS and Scopus indexed International Journal / 8-Node solid-shell elements selective mass scaling for explicit dynamic analysis of layered thin-walled structures	Very good
4	Paper on WoS and Scopus indexed International Journal / A domain decomposition approach for the simulation of fracture phenomena in polycrystalline microsystems	Excellent
5	Paper on WoS and Scopus indexed International Journal / A three-scale approach to the numerical simulation of metallic bonding for MEMS packaging	Good
6	Paper on WoS and Scopus indexed International Journal / A resonant micro accelerometer based on electrostatic stiffness variation	Very good
7	Paper on WoS and Scopus indexed International Journal / A domain decomposition method for the simulation of fracture in polysilicon MEMS	Good
8	Paper on WoS and Scopus indexed International Journal / Physically-based reduced order modelling of a uni-axial polysilicon MEMS accelerometer.	Very good
9	Paper on WoS and Scopus indexed International Journal / Parallelized sigma-point Kalman filtering for structural dynamics	Very good

10	Book Chapter / Multi scale simulation of shock-induced failure of polysilicon MEMS	Good
11	Paper on WoS and Scopus indexed International Journal / Two-scale simulation of drop-induced failure of polysilicon MEMS sensors	Very good
12	Paper on WoS and Scopus indexed International Journal / Overall elastic properties of polysilicon films: a statistical investigation of the effects of polycrystal morphology	Good
13	Paper on WoS and Scopus indexed International Journal / Monte Carlo simulation of micro-cracking in polysilicon MEMS exposed to shocks	Very good
14	Paper on WoS and Scopus indexed International Journal / A microsystem for the fracture characterization of polysilicon at the microscale	Very good
15	Paper on WoS and Scopus indexed International Journal / Polysilicon MEMS accelerometers exposed to shocks: numerical-experimental investigation	Good
16	Paper on Scopus indexed International Journal / A finite element flux-corrected transport method for wave propagation in heterogeneous solids	Poor
17	Paper on WoS and Scopus indexed International Journal / Modeling impact-induced failure of polysilicon MEMS: a multi scale approach	Very good
18	Paper on WoS and Scopus indexed International Journal / On a deterministic approach for the evaluation of gas damping in inertial MEMS in the free-molecule regime	Very good
19	Paper on WoS and Scopus indexed International Journal / Multi-scale analysis of polysilicon MEMS sensors subject to accidental drops: effect of packaging	Good
20	Paper on WoS and Scopus indexed International Journal / A new on- chip test structure for real time fatigue analysis in polysilicon MEMS	Good
21	Paper on WoS and Scopus indexed International Journal / A three-scale FE approach to reliability analysis of MEMS sensors subject to impacts	Very good
22	Paper on WoS and Scopus indexed International Journal / Mechanical characterization of Ti-5Al-2.5Sn ELI alloy at cryogenic and room temperatures	Very good
23	Paper on WoS and Scopus indexed International Journal / Multi-scale analysis of MEMS sensors subject to drop impacts	Very good
24	Paper on WoS and Scopus indexed International Journal / Analysis of gas flow in MEMS by a deterministic 3D BGK model	Satisfactory
25	Paper on WoS and Scopus indexed International Journal / Unscented Kalman filter for nonlinear structural dynamics	Excellent
	Total	32 points

Overall collective judgement

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

The Applicant has globally authored 25 papers published on Scopus-indexed international journals (none of which is single-authored, and 23 of which are also WoS-indexed). He co-authored 1 book, 1 book chapter, 36 papers published in proceedings of international conferences, and 19 in proceedings of national conferences.

The Applicant submits 24 papers and 1 book chapter. 1 of the papers is from a non-WoS-indexed journal. 3 papers are "conference papers" according to Scopus. The remaining papers are published on Scopus- and WoS-indexed international journals. None of the submitted papers is single-authored.

The quality of the scientific production is good. According to the Scopus database, the current h-index of the Applicant is 12 (10, excluding self-citations); so far, the papers published by the Applicant got 410 citations (299 excluding self-citations). According to the Web of Science database, his h-index is 12 and the number of citations is 322. The sum of the impact factors of the journals on which the Applicant published the submitted papers, according to the Journal Citation Report (2016), is 50.02.

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

From 2001 to 2015 the Applicant assisted the teaching activities of several University courses (at PoliMI). Since 2007, he taught several BSc and MSc courses at the School of Architecture of PoliMI, for a total of 70 ECTS. According to the evaluation by the students, the quality of the lessons of the Applicant is "high" or, in one case, "average" (PoliMi website). He also gave 3 seminars in a PhD course (2007, 2009) and in a CISM course (2007).

SCIENTIFIC RESPONSIBILITY FOR FUNDED RESEARCH PROJECTS:

In 2013 and 2016: local leader of LISA project, calculation resources granted from Lombardy Region and CINECA.

CONSISTENCY WITH THE REQUIRED PROFILE:

According to his previous experiences, the Applicant only partially matches the profile outlined in the competition Notice

SCRUTINY OF THE DEGREE OF KNOWLEDGE OF THE ENGLISH LANGUAGE:

According to the quality of the text of the papers written in English and submitted by the Applicant, his degree of knowledge of the English language is considered to be very good.

THE BOARD

Prof. Pierre Duysinx (Chairman)

Prof. Erik Lund (Member)

Prof. Alberto Taliercio (Secretary)

Erik Lund

ATaliercio



PUBLIC SELECTION ESTABLISHED WITH DIRECTOR'S DECREE NO. 2017/PRA_POS_DICA9 OF 06/07/2017 PURSUANT TO THE NOTICE PUBLISHED IN THE OFFICIAL GAZETTE NO. 04/08/2017, n.59 FOR 1 POSITION AS ASSOCIATE PROFESSOR FOR THE COMPETITION SECTOR 08/B2 - STRUCTURAL MECHANICS - SDS ICAR/08 - STRUCTURAL MECHANICS, PURSUANT TO ART. 18 - LAW 240/2010, AT THE POLITECNICO DI MILANO - DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING (PROCEDURE CODE 2017/PRA_POS_DICA9).

ANNEX No. 2 to the FINAL REPORT

MERIT RANKING

SURNAME AND NAME	Overall score
BRUGGI MATTEO	96
GHISI ALDO FRANCESCO	78

Milan, October 18, 2017

THE BOARD

Prof. Pierre Duysinx (Chairman)

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