

Adriana Angelotti – Curriculum Vitae



Education

- Master Degree in Physics (2000) at Università degli Studi di Milano – thesis subject “Lysozime crystallization in the presence of PEG: study of the phase diagram and first steps of nucleation”; 110/110 cum laude.
- PhD in Energy Sciences XXVI cycle (2004) at Politecnico di Milano – thesis subject: “Summer cooling by thermal coupling with the ground”.

Scientific and teaching profile

- Since April 2019 Associate professor in Applied Environmental Physics at the Energy Department, Politecnico di Milano;
- April 2005 - March 2019 Research fellow at the BEST Department (2005-2011) and then at the Energy Department (2012-2019), Politecnico di Milano.

Her research activity focuses on energy efficiency and thermal comfort in the built environment, both from the HVAC systems point of view (ground source climatisation systems) and from the building envelope technologies and passive strategies (breathing walls, textile architecture, thermal inertia, ventilated facades, zero energy buildings, energy retrofit).

She is a member of the Building physics laboratory of the Energy Department, where she performs experimental activity with the Dual Air Vented Thermal Box apparatus, the Sand Box apparatus for geo-exchange and the mobile equipment for indoor and outdoor comfort monitoring.

Since 2015 she is a member of the Management Committee of the Inter-departmental Laboratory on innovative textiles (TexHUB) of Politecnico. In the TexHUB framework she performs experimental characterisations on the energy performances of textile components for architecture.

She contributed to the development of the technical standards on ground-source heat pumps (UNI 11466:2012) as a member of the 608 Workgroup of the Italian Technical Committee (CTI).

Since A.Y. 2009/2010 she teaches Building Physics at the Bachelor of Building Engineering in the Architecture, Planning and Construction Engineering School of Politecnico; she is a member of the Scientific Committee of the Rided Energia Master.

During the period 2013-15 she served as the President of the Committee for Equal Opportunities and Work Wellness of Politecnico.

Research themes

The research activity follows three main lines:

- A) climatisation systems for buildings
- B) high efficiency envelope components and buildings
- C) indoor and outdoor thermal comfort

A) climatisation systems for buildings

A1) ground source climatisation systems:

numerical modelling of the energy performance of ground source heat pumps with vertical boreholes in the presence of groundwater flow [8,14,15];

study of the impact of groundwater flow on Thermal Response Test and development of innovative models and procedures through physical models at laboratory scale (Sand Box project – FARB grant) [5,27];

numerical modelling and monitoring of energy geostructures [1,4,6,33,38,39];

development of ground source systems for the zoo-technical sector (EcoZoo project – MIUR-Lombardy Region grant) [7,35];

energy monitoring of systems (multifunctional building in Tradate (VA), Physics Department Politecnico di Milano, Zoo-technical Education and Research Center at Lodi campus Università degli Studi di Milano);

testing of direct ground cooling systems at the LaBEST (Laboratory Building for Energy Saving Technology) Politecnico di Milano, and development, by means of dynamic simulations, of sizing criteria for ground heat exchangers [50,51,52].

A2) exergy analysis for climatisation systems:

in the framework of the international projects IEA Annex 49 e COST Action C24, combined energy and exergy analysis of climatisation systems, even based on renewable energy sources, and of urban scale energy systems; development of methodologies for dynamic exergy analysis [18,23,44,46,47,48].

B) high efficiency envelope components and buildings

B1) advanced envelope components

Experimental characterisation of the thermal-physical behavior of Breathing Walls, development and validation of analytical and numerical models, definition of key parameters and optimal use conditions [2,3,9,31,34];

modelling of double-skin facaded, either naturally or mechanically ventilated, by means of dynamic simulation tools (PRIN 2005 and PRIN 2007 projects) [55, 43];

laboratory measurement of the thermal transmittance of textile pneumatic cushions for architecture and design of advanced energy efficient solutions (Inter-departmental laboratory TexHub) [28];

design and development of cement-based insulated prefabricated building components with PV integration for retrofitting industrial buildings (Sinergie Attive project) [32].

B2) high energy performance buildings

Design and testing of nZEB emergency houses (SMART VTR BIO SYS project);

methodologies for calibrating dynamic simulation models and guidelines for using dynamic simulation for energy retrofit in the nZEB perspective (PRIN 2015 project) [30];

energy analysis through monitoring and dynamic simulation of textile pressostatic and pneumatic envelopes of different generations for sport environments [11, 41]; analysis of the energy performance of exhibition buildings in a life cycle perspective and study of energy retrofit solutions [10, 54];

natural ventilation at the urban scale: combined modelling by means of building energy simulation and node networks of the night ventilation potential for buildings in urban contexts with different densities [12,13,42];

analysis of the impact of insulation and massive layers on the dynamic properties of opaque components [20, 25]; evaluation of the influence of thermal capacity in highly insulated building envelopes on the climatization demand [19].

C) indoor and outdoor thermal comfort

Filed studies in indoor thermal comfort models: comparison between subjective assessments and measurements based assessment, influence of the climatization habits of the occupants on the thermal perception [45];

development of simplified models and calculation tools for thermal comfort evaluation in urban spaces [26, 49]; microclimatic measurements in urban contexts: methods and instruments; development of textile devices for urban climate mitigation (PoliSocial Award 2017 “West Road Project”) [29].

Scientific skills

- Measurements of the energy performance of building components
- Measurements of indoor and outdoor micro-climatic parameters for thermal comfort assessment
- Energy monitoring of HVAC systems
- Measurement of the heat transfer efficiency of ground heat exchangers
- Building physics modelling (dynamic energy simulation tools such as TRNSYS and EnergyPlus, numerical modelling, thermal network modelling)
- Coding (Matlab, LabView)

International and national research projects

- **SMART VTR BIO SYS** "Sviluppo e industrializzazione di un sistema di edifici a struttura mista, in vetroresina e C.A./legno, prefabbricati, anti-sismici, ad energia quasi zero", Bando Regione Lombardia Smart Living: Integrazione tra produzione servizi e tecnologia nella filiera costruzioni-legno-arredo-casa, di cui al D.D.U.O. 15 NOVEMBRE 2016 - n. 11672 (2017-19), participant;
- **PRIN 2015** "Riqualificazione del parco edilizio esistente in ottica nZEB (nearly Zero Energy Buildings): costruzione di un network nazionale per la ricerca" (2018-20), participant;
- **S.IN.E.RG.I.E ATTIV.E.** - Sistema INtegrato sostenibile Energeticamente aTTivo per il rinnoVo degli edifici industriali attraverso coperture composite - BANDO DI INVITO A PRESENTARE PROGETTI DI RICERCA INDUSTRIALE E SVILUPPO SPERIMENTALE NEI SETTORI STRATEGICI DI REGIONE LOMBARDIA E DEL MIUR DI CUI AL DECRETO N. 7128 DEL 29 LUGLIO 2011 (2012-14), participant;
- **EcoZoo** "Tecnologie Innovative per il miglioramento dell'impatto ambientale, del benessere e salute animale negli allevamenti intensivi Lombardi di bovini e suini" - BANDO DI INVITO A PRESENTARE PROGETTI DI RICERCA INDUSTRIALE E SVILUPPO SPERIMENTALE NEI SETTORI STRATEGICI DI REGIONE LOMBARDIA E DEL MIUR DI CUI AL DECRETO N. 7128 DEL 29 LUGLIO 2011 (2012-14), participant;
- **EU COST Action C24** "Analysis and Design of Innovative Systems for Low-EXergy in the Built Environment: COSTeXergy" (2007-10), Management Committee member;
- **International Energy Agency ECBCS Annex 49** "Low-exergy systems for high-performance built environment" (2007-09), participant;
- **PRIN 2007** "RES2 - Responsive by Renewables. Una nuova frontiera per il miglioramento dell'efficienza energetica e della qualità globale dell'ambiente interno tramite componenti edilizi adattativi integrati con fonti rinnovabili", local unit coordinator;
- **PRIN 2005** "Studio termofluidodinamico di componenti di facciata adattativi per il comfort ed il risparmio energetico", participant.

Politecnico research projects

- **PoliSocial Award 2017 "West Road Project"** (April 2017- ongoing), participant;
- **FARB "Sand Box apparatus for studying geo-exchange under groundwater flow"** (Nov 2016 – ongoing), principal investigator.

Publications

International journals

1. STERPI, D., TOMASELLI, G., ANGELOTTI, A. (2020). Energy performance of ground heat exchangers embedded in diaphragm walls: Field observations and optimization by numerical modelling. *RENEWABLE ENERGY*, vol. 147 (2), p. 2748-2760, doi:10.1016/j.renene.2018.11.102
2. ALONGI A., ANGELOTTI A, MAZZARELLA L. (2019). Experimental validation of a steady periodic analytical model for Breathing Walls. *BUILDING AND ENVIRONMENT*, vol. 168, 106509, doi: 10.1016/j.buildenv.2019.106509.
3. ALONGI A., ANGELOTTI A, MAZZARELLA L. (2019). Measuring a Breathing Wall's effectiveness and dynamic behaviour. *INDOOR AND BUILT ENVIRONMENT*, p. 1-10, doi: 10.1177/1420326X19836457.
4. STERPI D., ANGELOTTI A, HABIBZADEH-BIGDARVISH O., JALILI D. (2018). Assessment of thermal behaviour of thermo-active diaphragm walls based on monitoring data. *JOURNAL OF ROCK MECHANICS AND GEOTECHNICAL ENGINEERING*, vol. 10 (6), p. 1145-1153.
5. ANGELOTTI A., LY F., ZILLE A. (2018). On the applicability of the moving line source theory to thermal response test under groundwater flow: considerations from real case studies. *GEOTHERMAL ENERGY*, vol. 6 (1), p. 1-17, doi: 10.1186/s40517-018-0098-z.
6. ANGELOTTI A., STERPI D. (2018). On the performance of energy walls by monitoring assessment and numerical modelling: a case in Italy. *ENVIRONMENTAL GEOTECHNICS*, vol. 5, p. 1-8.
7. ALBERTI, L., ANTELM I., ANGELOTTI, A., FORMENTIN, G. (2017). Geothermal heat pumps for sustainable farm climatization and field irrigation. *AGRICULTURAL WATER MANAGEMENT*, vol. 195, p. 187-200, ISSN: 0378-3774, doi: 10.1016/j.agwat.2017.10.009.
8. ALBERTI, LUCA, ANGELOTTI, ADRIANA, ANTELM I., MATTEO, LA LICATA, IVANA (2017). A Numerical Study on the Impact of Grouting Material on Borehole Heat Exchangers Performance in Aquifers. *ENERGIES*, vol. 10, p. 1-15, ISSN: 1996-1073, doi: 10.3390/en10050703.
9. Alongi A., Angelotti A, Mazzarella L. (2017). Experimental investigation of the steady state behaviour of Breathing Walls by means of a novel laboratory apparatus. *BUILDING AND ENVIRONMENT*, vol. 123, p. 415-426, ISSN: 0360-1323, doi:10.1016/j.buildenv.2017.07.013.
10. PAGANIN G., ANGELOTTI A., DUCOLI, C., LAVAGNA, M., TALAMO, C., Luccietto, S. (2017). Energy performance of an exhibition hall in a life cycle perspective: embodied energy, operational energy and retrofit strategies. *ENERGY EFFICIENCY*, vol. 10, p. 1343-1364, ISSN: 1570-646X, doi:10.1007/s12053-017-9521-8.
11. SUO H., ANGELOTTI A., ZANELLI A. (2015), Thermal-physical behaviour and energy performance of air-supported membranes for sports halls: a comparison among traditional and advanced building envelopes. *ENERGY AND BUILDINGS*, vol. 109, p. 35-46.
12. RAMPONI R., GAETANI I., ANGELOTTI A. (2014), Influence of the urban environment on the effectiveness of natural night-ventilation of an office building. *ENERGY AND BUILDINGS*, vol. 78, p. 24-34.
13. RAMPONI R., ANGELOTTI A., BLOCKEN B. (2014), Energy saving potential of night ventilation: sensitivity to pressure coefficients for different European climates. *APPLIED ENERGY* vol. 123, p. 185-195.
14. ANGELOTTI A., ALBERTI L., LA LICATA I., ANTELM I. M. (2014), Energy performance and thermal impact of a Borehole Heat Exchanger in a sandy aquifer: Influence of the groundwater velocity. *ENERGY CONVERSION AND MANAGEMENT*, vol. 77, p. 700–708.
15. ANGELOTTI A., ALBERTI L., LA LICATA I., ANTELM I. M. (2014), Borehole Heat Exchangers: heat transfer simulation in the presence of a groundwater flow, *Journal of Physics: Conference Series* 501.

16. ANGELOTTI A., CAPUTO P., SOLAINI G. (2012), Steady versus dynamic exergy analysis of climatisation systems: the case of an air source heat pump, *INTERNATIONAL JOURNAL OF EXERGY*, vol. 11 (4), p. 460-472.
17. ALBERTI L., ANGELOTTI A., ANELMI M., LALICATA I., LEGREZZI C. (2012), Low temperature geothermal energy: heat exchange simulation in aquifer through Modflow/MT3DMS codes, *AQUA MUNDI, Journal of Water Sciences*, vol. 3 (1), p. 39-51.
18. TORIO H, ANGELOTTI A., SCHMIDT D. (2009), Exergy analysis of renewable energy-based climatisation systems for buildings: a critical view, *ENERGY AND BUILDINGS*, vol. 41 (3), p. 248-271.
19. ASTE N., ANGELOTTI A., BUZZETTI M. (2009), The influence of the external walls thermal inertia on the energy performance of well insulated buildings, *ENERGY AND BUILDINGS*, vol. 41 (11), p. 1181-1187.

National journals

20. ANGELOTTI A., MORELLO E. (2008), Inerzia termica. Analisi delle proprietà di alcune soluzioni per chiusure verticali opache, *COSTRUIRE*, 305, 96-100, ISSN: 1121-6336.
21. ANGELOTTI A., TOMMASI S., LAMPARELLI C. (2007), La certificazione energetica degli edifici: vincolo o opportunità per il progettista?, *IL PROGETTO SOSTENIBILE*, 13, 42-45, ISSN: 1974-3327.
22. ANGELOTTI A., SOLAINI G. (2005), Utilizzo del terreno per il raffrescamento estivo degli edifici, *IL PROGETTO SOSTENIBILE*, 5, 53-57, ISSN: 1974-3327.

Book chapters

23. ANGELOTTI A., JANSEN S., SHUKUYA M., TORIO H. (2011), Methods and models for exergy analysis, in: *Low Exergy Systems for High-Performance Buildings and Communities: Annex 49 Summary Report*, a cura di: Torio H. e Schmidt D., 11-22, ISBN: 978-3-8396-0239-3, Fraunhofer Verlag, Stuttgart (Germany).
24. ANGELOTTI A. (2010), Energia geotermica, 176-179, in aa.vv. *EcoSphera*, a cura di: Niles Eldredge, Telmo Pievani, ISBN: 978-88-02-08384-1, UTET (ITALY).
25. ANGELOTTI A., MORELLO E. (2009), Il ruolo della massa: analisi e valutazione delle caratteristiche dinamiche di chiusure verticali opache, in: *Raccomandazioni per la progettazione di edifici energeticamente efficienti*, a cura di: Andrea Campioli e Monica Lavagna, 35-42, ISBN: 978-88-8138-125-8, Edizioni Laterservice, Roma (ITALY).
26. ANGELOTTI A. (2007), Il modello COMFA+, in: *DESSI' V., Progettare il comfort urbano*, 223-246, ISBN: 978-88-513-0473-7, Esselibri, Napoli (ITALY).

International congresses proceedings

27. ANGELOTTI A., MOLINAROLI L. (2019). A laboratory apparatus to study thermal response test in the presence of groundwater flow. *E3S WEB OF CONFERENCES, Proc. CLIMA 2019*, p. 1-8, Bucharest, Romania, 26-29 May 2019.
28. ALONGI A., ANGELOTTI A., RIZZO A., ZANELLI A. (2019). Thermal performance of pneumatic cushions: an experimental evaluation. In: *Proceedings of Tensinet Symposium 2019*, p. 580-591, Milano, Italy, 3-5 June 2019.
29. CANTINI A., ANGELOTTI A., ZANELLI A. (2019). A lightweight textile device for urban microclimate control and thermal comfort improvement: concept project and design parameters. In: *Proceedings*

- of Tensinet Symposium 2019, p. 547-557, Milano, Italy, 3-5 June 2019.
30. ANGELOTTI A., MARTIRE M., MAZZARELLA L., PASINI M., BAGGIO P., PRADA A., BALLARINI I., CORRADO V., DE LUCA G., BOSCO F., CORNARO C. (2018). Building energy simulation for Nearly Zero Energy retrofit design: the model calibration. In: Proceedings International Conference EEEIC 2018, Palermo, Italy, 12-15 June 2018.
 31. ALONGI A., ANGELOTTI A., MAZZARELLA L. (2018). Measuring Breathing Walls effectiveness and dynamic behaviour. In: Proceedings of ROOMVENT 2018, P. 469-474, Espoo, Finland, 2-5 June 2018.
 32. ANGELOTTI A., LEVA S., ZANI G., DI PRISCO M. (2018). Sustainability-oriented innovation of a multilayered cement-based roof element. In: Proceedings 2nd International Workshop on Durability and Sustainability of Concrete Structures (DSCS-2018), Moscow, Russia, 6-7 June 2018.
 33. STERPI D., ANGELOTTI A., HABIBZADEH-BIGDARVISH O., JALILI D. (2018). Heat transfer process in a thermo-active diaphragm wall from monitoring data and numerical modelling. In: Proceedings of NUMGE 2018, p. 731-736, Porto, Portugal, 25-27 June 2018.
 34. ALONGI A., ANGELOTTI A., MAZZARELLA L. (2017). Analytical modelling of Breathing Walls: experimental verification by means of the Dual Air Vented Thermal Box lab facility. ENERGY PROCEDIA, vol. 140, p. 36-47, ISSN: 1876-6102, doi: 10.1016/j.egypro.2017.11.121
 35. ANGELOTTI A., ALBERTI L., ANTELMINI M., LEGRENZI C., FORMENTIN G. (2016), Zoo-technical application of Ground Source Heat Pumps: a pilot case study. In: Proceedings 12th REHVA Congress CLIMA 2016, Aalborg, Denmark.
 36. STAITI M., ANGELOTTI A. (2015). Design of borehole heat exchangers for ground source heat pumps: a comparison between two methods, ENERGY PROCEDIA 78, 1147-1152.
 37. Dama A., Angelotti A., Penso D. (2015). Integrated design and dynamic simulation for a new zero energy building, Proceedings Building Simulation Applications BSA 2015. p. 223-230, Bolzano, Italy.
 38. D. Sterpi, A. Angelotti, D. Corti, M. Ramus (2014). Numerical analysis of heat transfer in thermo-active diaphragm walls. In: Proc. 8th Europ. Conf. Numerical Methods in Geotechnical Engineering, NUMGE 2014. p. 1043-1048, London:Taylor & Francis Group, ISBN: 9781138001466, Delft, The Netherlands, 18-20 June 2014.
 39. STERPI D., ANGELOTTI A. (2013). Performance and effects on the subsoil temperature of a thermo-active diaphragm wall. Proc. Int. Workshop on Geomechanics & Energy "The ground as energy source and storage", EAGE (European Association of Geoscientists and Engineers), Lausanne, Switzerland, 26-28 November 2013, ISBN: 978-90-73834-61-3 (5 pp).
 40. RAMPONI R., BLOCKEN B.J.E., ANGELOTTI A. (2013). Computational modeling of outdoor wind flow and indoor airflow in a cross-ventilated office building. In C. Baker, J. Owen, D. Hargreaves & M. Sterling (Eds.), Proceedings of 6th European-African Conference on Wind Engineering (EACWE), July 7-11, 2013, Cambridge, UK, (pp. 1-8).
 41. SUO H., ANGELOTTI A., ZANELLI A., RESCIA R. (2013). Energy performance of different pneumatic and air-supported membranes for sports halls, Proceedings of Tensinet Symposium 2013, 8-10 May 2013, Istanbul, Turkey, 379-390, ISBN: 9789072325068.
 42. RAMPONI R., COSTOLA D., ANGELOTTI A., BLOCKEN B., HENSEN J.L.M. (2011). Evaluation of wind-driven ventilation in building energy simulation: sensitivity to pressure coefficients, Proceedings of CISBAT 2011, 14-16/09/2011, Lausanne, Switzerland, 949-954, ISBN cd-version: 978-2-8399-0906-8.
 43. ANGELOTTI A., DAMA A., MAZZARELLA L. (2010). Modeling naturally ventilated double skin facades, Proceedings of CLIMA 2010 10th REHVA World Congress, 9-12/05/2010, Antalya, Turkey, ISBN: 9789756907146.
 44. ANGELOTTI A., CAPUTO P., COSTA G. (2010). Potential improvements of energy systems; evaluation of the energy and exergy performances of an Italian neighborhood, Proceedings of CLIMA 2010 10th REHVA World Congress, 9-12/05/2010, Antalya, Turkey, ISBN: 9789756907146.
 45. ANGELOTTI A., (2010). Subjective versus objective assessment of thermal comfort: preliminary considerations on an experimental campaign in university classrooms, Proceedings of CLIMA 2010

- 10th REHVA WORLD Congress "Sustainable Energy Use in Buildings", 9-12/05/2010, Antalya, Turkey, ISBN: 9789756907146.
46. ANGELOTTI A., CAPUTO P., SOLAINI G. (2009). Dynamic exergy analysis of an air source heat pump, Proceedings of 1st ELCAS, Nisyros, Greece, 4-6 June 2009, ISBN: 978-960-243-663-9.
 47. ANGELOTTI A., CAPUTO P. (2007). The exergy approach for the evaluation of heating and cooling technologies; first results comparing steady state and dynamic simulations, Proceedings of Palenc 2007, Crete, Greece, 27-29 Sept. 2007, 1, 59-64.
 48. ANGELOTTI A., CAPUTO P. (2007). Energy and exergy analysis of heating and cooling systems in the Italian context, Proceedings of Climamed 2007, Genova, Italy, 5-7 Sept. 2007, 843-854, ISBN: 978-889-562-0022.
 49. ANGELOTTI A., DESSI' V., SCUDO G. (2007), The evaluation of thermal comfort conditions in simplified urban spaces: the COMFA+ model, Proceedings of Palenc 2007, Crete, Greece, 27-29 Sept. 2007, 1, 65-69.
 50. ANGELOTTI A., SOLAINI G. (2006), Design guidelines for direct ground cooling systems in different climates, Proceedings of PLEA 2006, Geneva, Switzerland, 6-8 Sept. 2006, 2, 363-368, ISBN: 2-940156-31-X.
 51. ANGELOTTI A., SOLAINI G. (2006), Direct ground cooling: influence of ground properties on the ground heat exchanger size, Proceedings of EPIC 2006 AIVC, Lyon, France, 20-22 Nov. 2006, 1, 69-74, ISBN: 2-86834-122-5.
 52. ANGELOTTI A., PAGLIANO L., SOLAINI G. (2004), Summer cooling by earth-to-water heat exchangers: experimental results and optimisation by dynamic simulation, Proceedings of EuroSun 2004, 20-23 June 2004, Freiburg, Germany, 2, 678-686, ISBN: 3-980-9656-2-7.

National congresses proceedings

53. ANGELOTTI A., ALBERTI L., LALICATA I., ANTELMINI M., (2013). Borehole Heat Exchangers: heat transfer simulation in the presence of a groundwater flow, Proceedings of the 31st UIT Heat Transfer Conference, June 25-27, Como, Italy, Vol. 2, 591-598, ISBN: 97888-6493-017-6.
54. ANGELOTTI A., DUCOLI C., LUCCIETTO S., PAGANIN G., TALAMO C. (2011). Energy retrofit strategies: the case of Milan Trade Fair, Atti del 66° Congresso Nazionale ATI, Rende (Cosenza), Italy, 5-9 Sept. 2011, ISBN: 978-88-95267-11-1.
55. ANGELOTTI A., DAMA A., PERINO M., MAZZARELLA L. (2007), Validazione sperimentale di un modello per facciate a "doppia pelle" in ventilazione meccanica, Atti del 62° Congresso Nazionale ATI, Salerno, Italy, 11-14 Sept. 2007, 1, 306-311, ISBN: 978-88-87998-77-1.
56. BALOCCO C., GAGLIARDI A., GRAZZINI G., ANGELOTTI A., SOLAINI G. (2004), Ground thermal storage using vertical pipes, Atti del 22° Congresso Nazionale sulla Trasmissione del Calore, Genova, Italy, ISBN: 88-7741-1303-7.
57. ANGELOTTI A., SOLAINI G. (2003), Raffrescamento estivo di un edificio tramite accoppiamento termico indiretto con il terreno, atti del 58° Congresso ATI, 9-12 Sept. 2003, Padova-S. Martino di Castrozza, Italy, 3, 1667-1674, ISBN: 88-86281-83-8.

Editing

58. Colombo L. P. M., Angelotti A., Molinaroli L. (2017). Elementi di fisica tecnica: termodinamica applicata, meccanica dei fluidi, trasmissione del calore. Mc Graw Hill.

Scientific committees

- Member of the scientific committee of the Tensinet Symposium 2019 “Softening the Habitats: Sustainable Innovations in Minimal Mass Structures and Lightweight Architectures”, 3-5 June 2019, Politecnico di Milano

Scientific Awards

- Best Paper Award Roomvent & Ventilation 2018, 2-5 June 2018, Espoo, Finland.