

Claudia Fabiani

Curriculum Vitae

Life is like riding a bicycle. To keep your balance, you must keep moving.

Education

- 2015–o2019 **PhD in Energy and Sustainable Development**, *CIRIAF, Interuniversity Research Center*, Perugia, *Ottimo*.
- 2009–2015 **MSC in Building Engineering and Architecture**, *Università degli Studi di Perugia*, Perugia, *109/110*.
- 2002–2007 **High school diploma**, *Liceo Scientifico Statale A. Orsini*, Ascoli Piceno, *100/100*.

Research experience

Training courses

- Dec 2018-Apr 2019 **Fellowship for research activities**, *Perugia University*, Perugia,ITA.
Caratterizzazione sperimentale di sistemi innovativi per l'accumulo termo-energetico in edifici a zero energia.
- Sept-Dec 2017 **Visiting Student Research Collaborator at Princeton University**, *Princeton University*, Princeton,NJ USA.
Implementation of dynamic material thermal-optical properties on Urban Canopy Model.
- June 2017 **Corso Fluidodinamica Computazionale (CFD)**, **COMSOL Multiphysics**, *CNR*, Roma, Italy.
The course focused on computational fluid dynamics using Comsol Multiphysics.
- June 2017 **Corso COMSOL: Analisi termiche**, **COMSOL Multiphysics**, *CNR*, Roma, Italy.
The course focused on the simulation of the main heat transfer phenomena using Comsol Multiphysics.
- June 2017 **Corso Introduttivo a COMSOL Multiphysics**, *CNR*, Roma, Italy.
The course focused on the basic features of Comsol Multiphysics.
- October 2016 **3rd INNOSTORAGE TRAINING SCHOOL: Experimental apparatus for measurements**, *Universitat de Lleida*, Lleida, Spain.
The school presented all the different experimental apparata for the investigation of PCM thermal properties.

- July 2016 **LabVIEW, Data Acquisition and Signal Conditioning**, *National Instrument training course*, Perugia, Italy.
The course gave the basic information about signal processing and conditioning by using LabVIEW.
- July 2016 **LabVIEW, Core 1**, *National Instrument training course*, Perugia, Italy.
The course gave a basic knowledge of LabVIEW software.
- July 2016 **HOT DISK TRAINING SESSION**, *Hot Disk Facilities*, Gothenburg, Sweden.
A fully dedicated course about the thermal characterization of building materials by means of the Transient Plane Source Method.
- June 2015 **PhD SUMMER SCHOOL 2015, Building physics in urban environments**, *International Association of Building Physics*, Tourin, Italy.
The school presented all aspects of building physics and gave general considerations about thermal, acoustic and optical phenomena related to the built environment.

Journal Publications

- April 2019 **C. Fabiani, A.L. Pisello, E. Bou-Zeid, J. Yang, F. Cotana**, *Adaptive measures for mitigating urban heat islands: the potential of thermochromic materials to control roofing energy balance*, *Applied Energy*, 247:155–170.
- January 2019 **C. Fabiani, A.L. Pisello, M. Barbanera, L.F. Cabeza, F. Cotana**, *Assessing the Potentiality of Animal Fat Based-Bio Phase Change Materials (PCM) for Building Applications: An Innovative Multipurpose Thermal Investigation*, *Energies*, 12(6)1111.
- September 2018 **C. Fabiani, A.L. Pisello**, *Coupling the transient plane source method with a dynamically controlled environment to study PCM-doped building materials*, *Energy and Buildings*, 130:254–263.
- May 2018 **V.L. Castaldo, A.L. Pisello, C. Piselli, C. Fabiani, F. Cotana, M. Santamouris**, *How outdoor microclimate mitigation affects building thermal-energy performance: A new design-stage method for energy saving in residential near-zero energy settlements in Italy*, *Renewable Energy*, 127:920-935.
- May 2018 **C. Fabiani, A.L. Pisello, A. D'Alessandro, F. Ubertini, L.F. Cabeza, F. Cotana**, *Effect of PCM on the hydration process of cement-based mixtures: A novel thermo-mechanical investigation*, *Materials*, 11(6).
- Mar 2018 **A. Downey, A.L. Pisello, E. Fortunati, C. Fabiani, F. Luzi, L. Torre, F. Ubertini, S. Laflamme**, *Durability assessment of soft elastomeric capacitor skin for SHM of wind turbine blades*, *Proceedings of SPIE - The International Society for Optical Engineering*, 10599.
- Feb 2018 **A. D'Alessandro, A.L. Pisello, C. Fabiani, F. Ubertini, L.F. Cabeza, F. Cotana**, *Multifunctional smart concretes with novel phase change materials: Mechanical and thermo-energy investigation*, *Applied Energy*, 212:1448-1461.
- Feb 2018 **C. Fabiani, A.L. Pisello**, *Coupling controlled environmental forcing and transient plane source method: An innovative thermal characterization procedure for building insulation materials*, *Applied Thermal Engineering*, 130:254-263.

- Dec 2017 **A.L. Pisello, V.L. Castaldo, C. Piselli, C. Fabiani, F. Cotana**, *Thermal performance of coupled cool roof and cool façade: Experimental monitoring and analytical optimization procedure*, Energy and Buildings, 157:35-52.
- Nov 2017 **A.L. Pisello, F. Rosso, V.L. Castaldo, C. Piselli, C. Fabiani, F. Cotana**, *The role of building occupants' education in their resilience to climate-change related events*, Energy and Buildings, 154:217-231.
- Sept 2017 **F. Rosso, A.L. Pisello, V.L. Castaldo, C. Fabiani, F. Cotana, M. Ferrero, W. Jin**, *New cool concrete for building envelopes and urban paving: Optics-energy and thermal assessment in dynamic conditions*, Energy and Buildings, 151:381-392.
- Sept 2017 **A.L. Pisello, C. Fabiani, F. Cotana**, *New experimental technique to investigate the thermal behavior of PCM/doped concrete for enhancing thermal/energy storage capability of building envelope*, Energy Procedia, 126:139-146.
- Sept 2017 **A. D'Alessandro, C. Fabiani, A.L. Pisello, F. Ubertini, A.L. Materazzi, F. Cotana**, *Innovative concretes for low-carbon constructions: A review*, International Journal of Low-Carbon Technologies, 12,3:289-309.
- Mar 2017 **A.L. Pisello, A. D'Alessandro, C. Fabiani, A.P. Fiorelli, F. Ubertini, L.F. Cabeza, A.L. Materazzi, F. Cotana**, *Multifunctional Analysis of Innovative PCM-filled Concretes*, Energy Procedia, 111:81-90.
- Mar 2017 **A.L. Pisello, C. Fabiani, A. D'Alessandro, L.F. Cabeza, F. Ubertini, F. Cotana**, *Novel dynamic thermal characterization of multifunctional concretes with microencapsulated phase change materials*, Proceedings of SPIE - The International Society for Optical Engineering, 10171(8).
- Feb 2017 **A.L. Pisello, E. Fortunati, C. Fabiani, S. Mattioli, F. Dominici, L. Torre, L.F. Cabeza, F. Cotana**, *PCM for improving polyurethane-based cool roof membranes durability*, Solar Energy Materials and Solar Cells, 160:34-42.
- Aug 2016 **A.L. Pisello, V. L. Castaldo, C. Piselli, C. Fabiani, F. Cotana**, *How peers' personal attitudes affect indoor microclimate and energy need in an institutional building: Results from a continuous monitoring campaign in summer and winter conditions*, Energy and Buildings, 126,15:485-497.
- Aug 2016 **A.L. Pisello, C. Fabiani, N. Makaremi, V. L. Castaldo, G. Cavalaglio, A. Nicolini, M. Barbanera, F. Cotana**, *Sustainable New Brick and Thermo-Acoustic Insulation Panel from Mineralization of Stranded Driftwood Residues*, Energies, 9(8):619.
- Feb 2016 **A.L. Pisello, V.L. Castaldo, C. Fabiani, F. Cotana**, *Investigation on the effect of innovative cool tiles on local indoor thermal conditions: Finite element modeling and continuous monitoring*, Building and Environment, 97:55-68.
- Jan 2016 **F. Asdrubali, A.L. Pisello, F. D'Alessandro, F. Bianchi, C. Fabiani, M. Cornicchia, A. Rotili**, *Experimental and numerical characterization of innovative cardboard based panels: Thermal and acoustic performance analysis and life cycle assessment*, Building and Environment, 95:145-159.

- Nov 2015 **F. Asdrubali, A.L. Pisello, F. D'Alessandro, F. Bianchi, M. Cornicchia, C. Fabiani**, *Innovative cardboard based panels with recycled materials from the packaging industry: Thermal and acoustic performance analysis*, Energy Procedia, 78:321-326.
- Conference papers
- Sep 2018 **C. Fabiani, A.L. Pisello, M. Barbanera, F. Ubertini, L.F. Cabeza, F. Cotana**, *Investigation of dynamic thermal behavior of novel bio-based PCM for a variety of applications*, 13th Conference on Sustainable development of energy, water and environment systems, Palermo, IT.
- Sep 2018 **C. Fabiani, A.L. Pisello, E. Bou-Zeid, J. Yang**, *Using advanced Urban Canopy Models to investigate the potential of thermochromic materials as urban heat island mitigation strategies*, 7th International Building Physics Conference, Syracuse, NY.
- Sep 2018 **C. Fabiani, A.L. Pisello, A. D'Alessandro, F. Ubertini, L.F. Cabeza, F. Cotana**, *Using phase change materials to reduce the heat of hydration in cement-based materials: a thermo-mechanical investigation*, 18th CIRIAF International Conference, Perugia, IT.
- Jun 2018 **A.L. Pisello, C. Fabiani, A. D'Alessandro, F. Ubertini, L.F. Cabeza, F. Cotana**, *Role of PCM on the thermal performance of cement-based materials during the curing process*, 14th International Conference on Energy Storage, Adana, Turkey.
- Mar 2018 **A. Downey, A.L. Pisello, E. Fortunati, C. Fabiani, F. Luzi, L. Torre, F. Ubertini, S. Laflamme**, *Durability assessment of soft elastomeric capacitor skin for SHM of wind turbine blades*, Proceedings of SPIE - The International Society for Optical Engineering, 10599.
- Aug 2017 **C. Fabiani, A.L. Pisello, G. Moncada Lo Giudice**, *Effect of water content on the thermal behavior of green roof substrates in dynamic environmental conditions*, ICAE2017, Cardiff, UK.
- Apr 2017 **C. Fabiani, A.L. Pisello, G. Moncada Lo Giudice**, *Coupling controlled environmental forcing and transient plane source method: an innovative thermal characterization procedure for building insulation materials*, CIRIAF International Conference, Perugia, IT.
- Mar 2017 **A.L. Pisello, C. Fabiani, A. D'Alessandro, L.F. Cabeza, F. Ubertini, F. Cotana**, *Novel dynamic thermal characterization of multifunctional concretes with microencapsulated phase change materials*, SPIE 2017, Portland, USA.
- Feb 2017 **A.L. Pisello, V.L. Castaldo, C. Fabiani, F. Cotana**, *On the indoor thermal behavior of a building with cool envelope components*, 3rd Building Simulation Applications Conference BSA 2017, Bolzano, IT.
- Feb 2017 **A.L. Pisello, V.L. Castaldo, C. Piselli, C. Fabiani, F. Cotana**, *How does microclimate mitigation affect building thermal-energy performance in residential zero energy Italian settlements*, 3rd Building Simulation Applications Conference BSA 2017, Bolzano, IT.

- Jun 2016 **A.L. Pisello, V.L. Castaldo, C. Piselli, C. Fabiani, F. Cotana**, *Thermal performance of coupled cool roof and cool façade: results from a continuous monitoring campaign and sensitivity analysis*, National University of Singapore, Singapore.
- Jun 2016 **A.L. Pisello, F. Rosso, V.L. Castaldo, C. Piselli, C. Fabiani, M. Ferrero, F. Cotana**, *The Role of People Educational Background on their Vulnerability to Urban Overheating*, National University of Singapore, Singapore.
- May 2016 **A. L. Pisello, V. L. Castaldo, C. Piselli, C. Fabiani, F. Cotana**, *Can we assume that peers behave the same? Results from a continuous monitoring campaign in an office building*, CLIMA 2016 International conference, Aalborg, DK.
- Apr 2016 **A.L. Pisello, E. Fortunati, C. Fabiani, S. Mattioli, F. Dominici, L. Torre, L.F. Cabeza, F. Cotana**, *On the PCMs' effect for optimizing cool membrane weathering resistance*, CIRIAF International Conference, Perugia, IT.
- Apr 2016 **A.L. Pisello, A. D'Alessandro, C. Fabiani, F. Ubertini, L.F. Cabeza, F. Cotana**, *Thermal characterization of a new macroencapsulated matrix-type PCM as additive for cement-based materials*, CIRIAF International Conference, Perugia, IT.
- Apr 2016 **A.L. Pisello, C. Fabiani, G. Cavalaglio, A. Nicolini, M. Barbanera, F. Cotana**, *Sustainable new brick and insulation panel from mineralization of stranded driftwood residues*, CIRIAF International Conference, Perugia, IT.
- Apr 2016 **A.L. Pisello, C. Piselli, G. Pignatta, C. Fabiani, F. Ubertini, F. Cotana, M. Santamouris**, *Net Zero Energy settlements in Europe: first findings of the Zero-Plus Horizon 2020 project*, CIRIAF International Conference, Perugia, IT.
- Nov 2015 **F. Asdrubali, A.L. Pisello, F. D'Alessandro, F. Bianchi, M. Cornicchia, C. Fabiani**, *Innovative Cardboard Based Panels with Recycled Materials from the Packaging Industry: Thermal and Acoustic Performance Analysis*, 6th International Building Physics Conference, IBPC 2015, Turin, IT.

Conference presentations

- **7th International Building Physics Conference, Syracuse (NY) 2018**. Using advanced Urban Canopy Models to investigate the potential of thermochromic materials as urban heat island mitigation strategies.
- **CIRIAF International Conference, Perugia 2018**. Using phase change materials to reduce the heat of hydration in cement-based materials: a thermo-mechanical investigation.
- **UIT2017, Ancona 2017**. Using transient plane source method in controlled environmental conditions: an innovative thermal characterization procedure for building insulation materials.
- **CIRIAF International Conference, Perugia 2017**. Coupling controlled environmental forcing and transient plane source method: an innovative thermal characterization procedure for building insulation materials.
- **CIRIAF International Conference, Perugia 2016**. Sustainable new brick and insulation panel from mineralization of stranded driftwood residues.
- **6th International Building Physics Conference, IBPC 2015**. Innovative Cardboard Based Panels with Recycled Materials from the Packaging Industry: Thermal and Acoustic Performance Analysis.

International Projects

- **Horizon 2020**, InPath-TES: Innovation Pathways to TES (ongoing).
- **Horizon 2020**, Zero-Plus: Achieving near Zero and Positive Energy Settlements in Europe using Advanced Energy Technology (ongoing).
- **Horizon 2020**, Heracles: Heritage Resilience Against Climate Events on Site (ongoing).

Experimental skills

Thermal analysis	Guarded Hot Plate, Hot Disk, Environmental Simulation Chamber	Acoustic	Impedance Tube, Reverberating Chamber
Optic	Spectrophotometer with Integrating Sphere (UV-VIS-NIR)	Monitoring	Indoor and Outdoor Microclimate Stations

Computer skills

OS	Windows, Unix	CFD	Comsol Multiphysics, Ansys Fluent, Envimet
Data analysis	Matlab, Origin Lab, LabVIEW, SPSS	Editing	Latex, Microsoft Word
Modeling	Autocad, Rhinoceros	Graphics	Photoshop

Languages

Italian	Mother tongue
English	Effective Operational Proficiency
French	Waystage