

Niccolò Aste



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EDUCATION AND TRAINING

- 1996-1999 **Ph.D. in Technical Innovations and Project in Architecture** Department of Industrial Design and Architectural Technology, Politecnico di Milano.
▪ Thesis : “Designing of a hybrid photovoltaic - thermal collector integrated in buildings”
Supervisors: Professor F. M. Butera, Professor G. Scudo.
- 1994 **Graduate degree in Architecture (100L/100)**
Politecnico di Milano.
▪ Thesis : “Urban Photovoltaic, instruments and methods”
- 1987 **High School (50/60)**
Liceo Classico G. Carducci, Bolzano

ACCADEMIC POSITION

- From 2017 **Delegate for international relationship on Africa at Politecnico di Milano.**
Politecnico di Milano
- From 2017 **Full professor**
ABC department, Politecnico di Milano.
▪ SSD Ing-Ind/11, Applied Environmental Physics
- 2010-2017 **Associate professor**
ABC department, Politecnico di Milano.
▪ SSD Ing-Ind/11, Applied Environmental Physics
- 2002-2010 **Researcher**
Energy department, BEST e ABC, Politecnico di Milano
▪ SSD Ing-Ind/11, Applied Environmental Physics
- 2000-2002 **Research fellow**
Politecnico di Milano
▪ Research theme: “Integration of advanced technology with a low environmental-energetic impact in building components”.

SCIENTIFIC AND CONSULTANT
ACTIVITIES

-
- From 2020 **Research collaborator of H2020 project**
Politecnico di Milano
- Project “Africa-europe Bioclimatic Collaboration for the 21 st century - Abc 21 ”
 - Funded in the framework H2020-EU.3.3.1.- Reducing energy consumption and carbon footprint by smart and sustainable use
- From 2020 **Scientific Director**
Politecnico di Milano
- Project “Infrastructural and strategic strengthening of the Somali National University, Reconstruction of the Gahayr campus in Mogadishu”
 - Funded by AICS - Italian Agency for Development Cooperation
- From 2019 **Research collaborator of H2020 project**
ZH spin-off
- Project RE-COGNITION “REnewable COGeneration and storage technologies IntegrATIOn for energy autONomous buildings”
 - Funded in the framework of H2020-EU.3.3.2. - Low-cost, low-carbon energy supply
- 2019 **Research collaborator**
ABC Department, Politecnico di Milano in collaboration with Fondazione ENI Enrico Mattei e UN Sustainable Development Solutions Network
- Project “Roadmap to 2050: A manual for Nations to Decarbonize by Mid-Century”
- 2018 **Scientific Director**
ABC Department, Politecnico di Milano in collaboration with ENI
- Project Energy and architectural design of the Oyo Center of Excellence - R&D-A unit
- 2017-2018 **Scientific Director**
ABC Department, Politecnico di Milano in collaboration with UN-HABITAT
- Project “Comprehensive feasibility study for the closure of the informal dumpsite and construction of an integrated solid waste management facility in Ngong Town, Kenya”
 - Funded by UN-HABITAT
- From 2017 **Project coordinator of H2020 project**
ABC department, Politecnico di Milano
- Project HEART “Holistic Energy and Architectural Retrofit Toolkit”
 - Funded in the framework of H2020-EU.2.1.5.2. - Technologies enabling energy-efficient systems and energy-efficient buildings with a low environmental impact
- From 2017 **Research collaborator**
International Energy Agency - Solar Heating and Cooling Programme
- “Deep Renovation of Historic Buildings towards lowest possible energy demand and CO₂ emission (NZEB)”
- From 2016 **Scientific director of the research**
ABC department, Politecnico di Milano
- Design of a Smart Window integrated with LSC components (Luminescent Solar Concentrators), ENI S.p.A
- From 2016 **Research collaborator**
Energy/ABC department, Politecnico di Milano

- Project: ECHO/ERC/BUD/2016/91004 SET4Food: Sustainable energy technologies for food utilization in refugee camps. Phase 2 Target Countries: Global.
Scientific director: Prof.ssa E. Colombo, Politecnico di Milano.
- From 2016 Research collaborator**
Dipartimento ABC, Politecnico di Milano
 - Research aimed at the design of an experimental campaign of thermo-hygrometer parameters at the Milan Cathedral, within the framework of the Scientific Cooperation Agreement signed between Veneranda Fabbrica del Duomo di Milano and Politecnico di Milano.
Scientific director : Prof. S. Della Torre
- Dal 2016 Scientific director of the research**
Dipartimento ABC, Politecnico di Milano
 - Project “Hybrid PVT Assisted Heat Pump – Development of an Integrated Heating and Cooling System based on photovoltaic PVT-SAHP ”
- 2016 Scientific director of the consultancy**
ABC department, Politecnico di Milano
 - Energy concept of a new development “Milano 4 You”
- From 2014 Scientific director of the research**
ABC department, Politecnico di Milano
 - Project “Provision of training materials and training courses in East African countries” (Kenya, Uganda, Tanzania, Rwanda, Zambia) on the “Training Course on Integrated Sustainable Building Design for Tropical Countries”, UN-Habitat.
- 2010-2016 Scientific director of the consultancy**
ABC/BEST department, Politecnico di Milano
 - Technical-Operative Consultancy for the preliminary and final design of a 5 MWp photovoltaic plant
- 2015-2016 Scientific director of the research**
ABC department, Politecnico di Milano
 - Technological development of LSC components with the aim of building integration, ENI S.p.A
- 2013-2015 Research collaborator**
ABC department, Politecnico di Milano
 - Research aimed at the development and prototyping of a hydronic radiant system to achieve comfort in historic buildings ", Scientific director: Prof. S. Della Torre.
- 2012-2015 Scientific director of the research**
BEST department, Politecnico di Milano
 - Development, implementation and testing of a multflux energy island
- 2013-2015 Research collaborator**
Energy/ABC department, Politecnico di Milano
- 2014 Scientific director of the research**
ABC department, Politecnico di Milano
 - Project “Tender for Capacity Building and Training Service in Tanzania”, General Scientific director: Prof. E. Colombo.
- 2013-2016 Task leader**

International Energy Agency: Energy Conservation through Energy Storage Implementing Agreement

- Activity "Demonstration/Case Studies Analysis" in the framework of "IEA ECES Annex 31 - Energy storage with Net Zero Energy Buildings and Districts: Optimization and Automation".

2013 Scientific director of the research

ABC department, Politecnico di Milano

- Development of a decision support framework for the sustainable design and management of the built environment, Det Norske Veritas Italia s.r.l.

2013 Scientific director of the research

ABC department, Politecnico di Milano

- Multi-objective analysis and definition of the criteria for the labelling of energy efficiency and environmental sustainability of residential buildings

2013 Scientific director of the consultancy

ABC department, Politecnico di Milano

- BACS and energy efficiency: methods, instruments and standards - Federazione Nazionale delle Imprese Elettrotecniche ed Elettroniche ANIE

2013 Scientific director of the consultancy

ABC department, Politecnico di Milano

- Performance analysis of a PV plant - Generalcom S.p.A

2012-2014 Scientific director of the research

BEST department, Politecnico di Milano

- Implementation of strategies and application techniques for the development of distributed micro generation and energy storage systems at urban scale for electric mobility - I&C s.r.l.

2012-2013 Scientific director of the research

BEST department, Politecnico di Milano

- Project "Production of an Handbook of Sustainable Architecture in the East African Countries and organization of training courses on "Sustainable Integrated Design", UN-Habitat. Scientific directors: Proff. F. Butera e Niccolò Aste

2011-2015 Research collaborator

BEST/ABC department, Politecnico di Milano

- Project INNOVANCE, 2015

2011-2014 Scientific director of the research

BEST/ABC department, Politecnico di Milano

- Research program "Development of building components based on luminescent solar concentrators (LSC)" ENI S.p.A.

2011 Scientific director of the research

BEST department, Politecnico di Milano

- Development of an high performance Photovoltaic Greenhouse - Gramma Green Asset Management s.r.l

- 2011 **Scientific director of the consultancy**
BEST department, Politecnico di Milano
- Technical-operational consultancy aimed at the design of a 2.7 MWp photovoltaic plant - Consorzio Intercomunale per lo Smaltimento Rifiuti dei comuni di Vergiate e Somma Lombardo
- 2011 **Scientific director of the consultancy**
BEST department, Politecnico di Milano
- Feasibility study for the application of co/trigeneration systems at three sites owned by the Maritime Military Department of the Jonio e del Canale d'Otranto, I&C s.r.l.
- 2010-2013 **Scientific director of the consultancy**
BEST department, Politecnico di Milano
- Agreement between the Lombardy Region and Politecnico di Milano for the realization of the support service for monitoring activities referred to in art. 9 of Act III Supplementary Program Framework Agreement on Environment and Energy, Italian Ministry of Environment, Land & Sea - Lombardy Region, Scientific co-director: Prof. F. Butera,
- 2010-2011 **Scientific director of the consultancy**
BEST department, Politecnico di Milano
- Collaboration in the preparation of the Handbook for the proper implementation of the interventions related to the innovative applications aimed at the architectural integration of photovoltaics, Gestore dei Servizi Energetici.
- 2010-2012 **Scientific director of the consultancy**
BEST department, Politecnico di Milano
- D.E.E. Distretti Energetici Efficienti", Pool Engineering srl.
- 2010-2012 **Research collaborator**
BEST department, Politecnico di Milano
- Innovative methods, tools and products for the systematic integration of solar technologies into built environment, PRIN 2008, Scientific director: Prof. G. Scudo.
- 2008-2010 **Scientific director of the consultancy**
BEST department, Politecnico di Milano
- Collaboration in the preparation of the Handbook for the proper implementation of the interventions related to the innovative applications aimed at the architectural integration of photovoltaics, Gestore dei Servizi Energetici.
- 2008-2010 **Scientific director of the consultancy**
BEST department, Politecnico di Milano
- Energy and environmental consultancy for energy planning and urban and architectural design of Ex Salvarani area, Sviluppi Immobiliari Parmensi S.p.A., Co-Scientific Director: Prof. G. Chiesa
- 2008-2011 **Co-Scientific director of the research**
BEST department, Politecnico di Milano

- Analysis of the current status and assessment of measures to minimize environmental impacts due to energy consumption for heating in Italy, Italian Ministry of Environment, Land & Sea, Scientific Director: Prof. F. Butera
- 2008 **Scientific director of the consultancy**
BEST department, Politecnico di Milano
- SAIEnergia – Energy Efficiency Building Technology: Glazing Envelope - FIERE INTERNAZIONALI DI BOLOGNA SpA.
- 2008 **Scientific director of the consultancy**
Dipartimento BEST, Politecnico di Milano
- Energy and environmental consultancy for the construction of a residential complex in Rodano, Società Trivella S.p.a., Co-Scientific Director; Prof. G.Chiesa
- 2008 **Scientific director of the research**
BEST department, Politecnico di Milano
- Development of an experimental window frame with integrated energy performance - FBS s.r.l.
- 2008 **Scientific director of the consultancy**
BEST department, Politecnico di Milano
- Technical-economical feasibility study for the realization of a 160 kWp photovoltaic plant - ERGO Italia Real Estate s.r.l.
- 2007-2008 **Scientific director of the consultancy**
BEST department, Politecnico di Milano
- Technical-economical feasibility study for the realization of a 400 kWp photovoltaic plant in the framework of Milano-Santander” - Advanced Real Invest S.p.a.
- 2007-2008 **Scientific director of the consultancy**
BEST ddepartment, Politecnico di Milano
- Energy and environmental consultancy for the construction of a building complex Montresora Court in Sona (VR), Società Cormorano 91 Srl
- 2007-2008 **Scientific director of the consultancy**
BEST department, Politecnico di Milano
- Drafting the new building regulation and the implementation of a pilot project based on the principles of sustainable architecture, Comune di San Martino Buon Albergo
- 2007 **Scientific director of the consultancy**
BEST department, Politecnico di Milano
- Energy performance analysis of the building envelope-HVAC system. Case study: double skin facade and radiant panels, JTS Engineering s.r.l.
- 2007-2008 **Research coordinator**
BEST department, Politecnico di Milano

- Feasibility study for the realization of a photovoltaic power plant distributed along the Milan-Serravalle motorway - MILANOSERRAVALLE – MILANOTANGENZIALI S.P.A., Scientific director: Prof. F. M. Butera,

2007 Scientific director of the consultancy

BEST department, Politecnico di Milano

- Scientific support and collaboration with SAIEDUE LIVING for the organization of the EDEN conference - Edilizia, Design, Energia e Natura, O. N. Organization Nike s.r.l.

2007 Scientific director of the consultancy

BEST department, Politecnico di Milano

- Analysis of the technical-economic feasibility and verification of project conformity of a 1 MW_p PV plants in Ragusa Province, Ab Energia, Co-Scientific director: Prof. P. Caputo

2007 Scientific director of the consultancy

BEST department, Politecnico di Milano

- Development of a single-axis photovoltaic shading system, CDR s.r.l.

2006-2007 Scientific director of the consultancy

BEST department, Politecnico di Milano

- Experimental evaluation of the performance of solar thermal and PVT hybrid modules - Secco Sistemi S.p.A.

2005-2008 Coordinator of the consultancy

Politecnico di Milano

- Consultancy of the energy design of "Campione del Garda" - COOPSETTE scarl., Scientific director Prof. G. Chiesa

2005-2008 Research collaborator

International Energy Agency - PV Power Systems Programme

- Programma "Task 10 - Urban Scale PV Applications"

2005 Scientific director of the consultancy

Dipartimento di Energetica, Politecnico di Milano

- Aspetti tecnologici e costruttivi dell'inserimento architettonico dei componenti fotovoltaici, contratto con CESI S.p.A.

2005 Scientific director of the consultancy

Energy department, Politecnico di Milano

- Consultancy for the design of new building in Mestre - BENFIN srl., Scientific director: Prof. G. Chiesa

2005 Scientific director of the consultancy

Energy department, Politecnico di Milano

- Energy consultancy related to project "Campione del Garda", - COOPSETTE scarl

- 2003-2004 **Research collaborator**
BEST department, Politecnico di Milano
▪ Design of “Sino-Italy Tsinghua Environment and Energy Building”, Scientific director: Prof. F. M. Butera.
- 2003 **Scientific director of the consultancy**
Energy department, Politecnico di Milano
▪ BIPV: Solutions and Perspectives for the Electrical System - con CESI S.p.A.
- 2002 **Scientific director of the consultancy**
Energy department, Politecnico di Milano
▪ Sustainable management of resources in the residential complex Borgo Solare, Gambale Immobiliare s.r.l.
- 2002 **Research coordinator**
BEST department, Politecnico di Milano
▪ Guidelines for the design of “Borgo Solare”, - Gambale Immobiliare s.r.l.
Scientific director: Prof. F. M. Butera,
- 2001 **Research coordinator**
Department of Industrial Design and Architectural Technology, Politecnico di Milano
▪ BIPV - CESI S.p.A, Scientific director: Prof. F. M. Butera
- 2001 **Research coordinator**
Department of Architectural Design, University Institute of Architecture, Venice
▪ Environmental Project - Photovoltaic Integration in Buildings, CNR and the Ministry of the Environment, Scientific Director: Prof. L. Semerani
- 2000-2001 **Research collaborator**
Department of Industrial Design and Architectural Technology, Politecnico di Milano
▪ Agreement between Ministry of the Environment and Politecnico di Milano for the project on energy refurbishment of the headquarters of the Ministry of Foreign Affairs in Rome, Scientific director: Prof. F. M. Butera.
- 2000-2001 **Research collaborator**
Department of Industrial Design and Architectural Technology, Politecnico di Milano
▪ Diffusion of low environmental impact technologies and significant use of renewable energy sources integrated into tertiary buildings and open spaces, Ministry of the Environment, Scientific Director: Prof. F. M. Butera.
- 2000-2001 **Research collaborator**
Energy department, Politecnico di Milano
▪ Development of a hybrid photovoltaic-thermal component for the integration into pitched roof, Secco Sistemi S.p.A., Scientific directors: Prof. G. Chiesa, Prof. G. Scudo

2000-2002 Research collaborator

Department of Industrial Design and Architectural Technology, Politecnico di Milano

- Integration of advanced low energy-environmental impact technologies in the building envelope components, Scientific director: Prof. F. M. Butera

2000-2001 Research coordinator

Energy department, Politecnico di Milano

- Development of a roofing component for the integration of photovoltaic modules on the pitched roofs, Gambale s.r.l., Scientific director: Prof. L. Mazzarella

1999-2001 Research collaborator

International Energy Agency

- "PV Power Systems Integrated in Buildings ,Task VII".

1997-1998 Research collaborator

Energy department, Politecnico di Milano

- "Rehabilitation of old tenement housing in Europe", In the framework of SAVE II, DG XVII, Scientific director: Prof. L. Mazzarella.

1996-1997 Research collaborator

Department of Industrial Design and Architectural Technology, Politecnico di Milano

- Development and application of analytical models and planning of urban energy system models, ENEL S.p.A., Scientific director: Prof. F. M. Butera,

1996-1999 Research collaborator

Istituto di Ricerche Ambiente Italia, Milano.

- Reseach on building integration of solar systems

1995-1996 Research collaborator

Commissione delle Comunità Europee

- Programma APAS, DG XII, "Combined electric and thermal energy production in existing and new buildings with photovoltaic envelope components"

TEACHING ACTIVITY**2017-2018 Lecturer**

Libera Università di Bolzano - UNIBZ

- Master "Bee – Building, Energy and Environment – CasaClima"

**2016 Lecturer at MOOC (Massive Online Open Course)
Sustainable building design for tropical climates: integrating design of buildings and technology systems**

POK – Polimi open course

- https://www.pok.polimi.it/courses/course-v1:Polimi+SustArch102+2019_M6/about

2016 Lecturer at MOOC (Massive Online Open Course)

“Sustainable building design for tropical climates: principles and guidelines for EAC”

POK – Polimi open course

▪ https://www.pok.polimi.it/courses/course-v1:Polimi+SustArch101+2019_M6/about**From 2016 Director of the course**

ABC department, Politecnico di Milano

▪ Training course “Energy Management”

2014-2016 Lecturer

Politecnico di Milano

▪ In the project “Provision of training materials and training courses in East African countries” (Kenya, Uganda, Tanzania, Rwanda, Zambia) on the “Training Course on Integrated Sustainable Building Design for Tropical Countries”, funded by UN-Habitat

2015 Lecturer

Politecnico di Milano

▪ Séminaire - Atelier de renforcement des capacités et de restitution du bilan-diagnostique
▪ Intégration des mesures d'efficacité énergétique, des énergies renouvelables et de conservation des ressources dans les normes de construction au Cameroun.**2014 Lecturer**

Politecnico di Milano

▪ In the framework “Training Course on Integrated Sustainable Building Design for Tropical Countries”, UN-Habitat (Kigali, Rwanda; Kampala, Uganda; Nairobi, Kenya; Yaoundé, Cameroon; Dar-Es-Salaam, Tanzania).

2014 Lecturer

Politecnico di Milano

▪ Lecturer “Training Workshop on Sustainable Integrated Building Design”, Arusha Technical College, Arusha, Tanzania.

2014 Lecturer

Politecnico di Milano

▪ In the framework “Tender for Capacity Building and Training Service in Tanzania”

From 2014 Director of the training course

Polo Regionale di Mantova, Politecnico di Milano

▪ Training course “ZEBSS - Zero Energy Buildings Summer School”

2012-2013 Co-director of the training course

Polo Regionale di Mantova, Politecnico di Milano

▪ Corso di formazione “ZEBSS - Zero Energy Buildings Summer School”

From 2012 Lecturer

Polo Regionale di Mantova, Politecnico di Milano

▪ Training course “ZEBSS - Zero Energy Buildings Summer School”

2012 Lecturer

Politecnico di Torino

- Master "Edilizia Sostenibile ed Efficienza Energetica"

- 2012 **Lecturer**
Scuola di Formazione IPSOA
 - Master "Master di Specializzazione Energia Sostenibile e Fonti Rinnovabili"

- 2012 **Lecturer**
Politecnico di Milano
 - Master "Ingegneria dei sistemi fotovoltaici"

- From 2012 **Director of the training course**
BEST/ABC department, Politecnico di Milano
 - Training course "Certificazione Energetica degli Edifici"

- From 2011 **Lecturer**
BEST/ABC department, Politecnico di Milano
 - Course of "Fisica Tecnica Ambientale – Progettazione Energetica nel Laboratorio di Progetto e Costruzione dell'Architettura"

- 2009-2012 **Lecturer and director of the training course**
BEST department, Politecnico di Milano
 - Training course "Progettazione specialistica impianti fotovoltaici"

- From 2009 **Lecturer**
Politecnico di Milano
 - Master "Pianificazione, Programmazione e Progettazione dei Sistemi Ospedalieri e Socio-Sanitari"

- 2009-2010 **Lecturer and Co-director of the training course**
BEST department, Politecnico di Milano
 - Training course "Aggiornamento sulla Certificazione Energetica degli Edifici"

- 2008-2010 **Co-director of the training course**
BEST department, Politecnico di Milano
 - Training course "Certificazione Energetica degli Edifici"

- From 2007 **Lecturer**
BEST/ABC department, Politecnico di Milano
 - Training course "Certificazione Energetica degli Edifici"

- 2007 **Lecturer**
Politecnico di Milano, Consorzio CIS-E
 - Master "Edifici e Infrastrutture Sostenibili"

- 2007 **Lecturer**
Associazione Cremonese Studi Universitari, CESVIN, Centro per lo Sviluppo dell'Innovazione, Cremona
▪ Training course "Progettazione e certificazione energetica degli edifici"
- 2007 **Lecturer**
Associazione Nazionale Architettura Bioclimatica, Milano.
▪ Seminar "Impianti solari attivi"
- 2007 **Lecturer**
CONSORTIUM s.r.l., Mantova
▪ Training course "Energia e costruzioni, soluzioni per il risparmio energetico"
- 2006 **Lecturer**
Scuola Universitaria Professionale della Svizzera Italiana, Treveno (Switzerland).
▪ Training course "Architettura ed Energia Solare"
- 2006 **Lecturer**
Agorà Ricerca e Formazione s.r.l., Milan
▪ Training course "Fotovoltaico in edilizia"
- 2006-2011 **Lecturer**
Libera Università di Bolzano
▪ Master "Casaclima"
- 2005 **Lecturer**
Scuola Universitaria Professionale della Svizzera Italiana, Trevan (Switzerland).
▪ Training course "Progettazione ecologica"
- 2003-2004 **Lecturer**
Università degli Studi di Napoli Federico II
▪ Master "Esperto in progettazione edile ed ambientale per l'integrazione del fotovoltaico"
- 2004-2008 **Lecturer**
Politecnico di Milano
▪ Master "RIDEF"
- From 2002 **Lecturer**
Politecnico di Milano, Architecture faculty, Mantova.
▪ Corso di Fisica Tecnica Ambientale

Dal 2002 al 2015 **Docente**
 Politecnico di Milano, VI Facoltà di Ingegneria, Lecco.
 ▪ Applied Environmental Physics

2001-2002 **Assistant Professor**
 Politecnico di Milano, Faculty of Architecture, Mantova
 ▪ Applied Environmental Physics

2001-2002 **Assistant Professor**
 Politecnico di Milano, Faculty of Architecture, Milan
 ▪ Corso di Fisica Tecnica Ambientale

OTHER ACCADEMIC ACTIVITY

From 2017 **Delegate for international relationship - Africa**
 Politecnico di Milano:

<http://www.polimi.it/ateneo/organi/rettore-e-prorettori/delegati-per-internazionalizzazione/>

2016 **Scientific director and lecturer of MOOC (Massive Online Open Courses)**
 Politecnico di Milano

From 2013 **President of Bachelor (BSc) Graduation Board in “Scienze dell'Architettura”**
 Polo Territoriale di Mantova , Politecnico di Milano

From 2012 **Member of PhD faculty Board, Architecture, Built Environment and Construction Engineering**
 ABC department, Politecnico di Milano

From 2013 **Scientific Commission Representative for the area ‘Applied Environmental Physics (SSD Ing-Ind/11)’**
 ABC department, Politecnico di Milano

From 2011 **Scientific Director of the PV Test Facility**
 ABC department, Politecnico di Milano

2008-2011 **Scientific Commission Representative for the area ‘Applied Environmental Physics (SSD Ing-Ind/11)’**
 BEST department, Politecnico di Milano

2007-2011 **Member of PhD faculty Board, Design e Tecnologie per la Valorizzazione dei Beni Culturali**
 BEST department, Politecnico di Milano

2007-2014 **Member of PhD faculty Board, TEPAC (Tecnologia e Progetto per l'Ambiente Costruito)**
 BEST department, Politecnico di Milano

2002-2007 **Member of PhD faculty Board, TPQA (Tecnologia e Progetto per la Qualità Ambientale a scala edilizia e urbana)**
 BEST department, Politecnico di Milano

Tutor/supervisor of the PhD thesis - “Sostenibilità in Architettura tra Linguaggio e Prestazioni”, L. C. Tagliabue, tutor: N. Aste, Ph.D TPQA, BEST department, Politecnico di Milano.

- “Ricerca e messa a sistema di una normativa di riferimento per l'integrazione edilizia dei componenti fotovoltaici”, M. Polinelli, Ph.D TPQA, BEST department, Politecnico di Milano.

- "Comfort OFFx - Qualità dell'ambiente termico dello spazio-ufficio contemporaneo", P. Leardini, Ph.D. TPQA, BEST department, Politecnico di Milano.
- "Controllo del comfort estivo negli edifici residenziali", M. Buzzetti, Ph.D TPQA, BEST department, Politecnico di Milano.
- "La Generazione Energetica Distribuita a Scala Urbana - Metodi Previsionali per la Stima dei Profili di Scambio di Sistemi per la Generazione Elettrica da Fonte Solare" C. Del Pero, Ph.D TEPAC, BEST department, Politecnico di Milano
- "Optimization of HVAC systems for distributed generation in function of climatic conditions and final uses" Dashamir Marini, PhD TEPAC, BEST department, Politecnico di Milano, XXIII ciclo.
- "Computational modelling of urban wind flow and natural ventilation potential of buildings", R. Ramponi, PhD TEPAC
- "The implications of the use of Building Environmental Assessment Tools within the building practice in Turkey", I. Ruhi, Ph.D TEPAC, BEST department, Politecnico di Milano.
- "A meta-model based approach for uncertainty analysis, calibration and optimization of building energy models", R. Moshksar, Ph.D TEPAC, Dipartimento BEST, Politecnico di Milano.
- "Ottimizzazione di un componente fotovoltaico ibrido con fluido termovettore ad acqua", F. Leonforte, PhD TEPAC, BEST department, Politecnico di Milano.
- "Building simulation models in control systems for energy efficiency", G. Marenzi, ABCPhD, Politecnico di Milano.
- "Assessment of energy and environmental performance of historic buildings: tools and methodology" H. Huerto, ABCPhD, Politecnico di Milano.

PERSONAL SKILLS AND COMPETENCES

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- 2016 **Speaker**
"8th International Conference on Applied Energy (ICAE-2016), Beijing, China"
 - 2016 **Member and chairman**
"Tecnologia nZEB: Smart Window", ENI - Politecnico di Milano
 - 2015 **Chairman ("Right for a quality shelter")**
"31° International PLEA Conference Passive Low Energy Architecture", Bologna, Italia.
 - 2015 **Chairman e speaker**
(sessione "Control of Pollutant Emissions in Distributed Energy Systems") presso la "5th International Conference on Clean Electrical Power (ICCEP 2015)", Taormina, Italia.
 - 2013 **Invited speaker**
"L'efficienza energetica nell'edilizia storica", Politecnico di Milano, Milano, Italia.
 - 2012 **Invited speaker**
conference "SACERT: dalla certificazione delle competenze allo Zero Energy Building", Milano, Italia.
 - 2012 **Invited speaker**
conference "Housing sociale ed edifici nearly zero" nell'ambito della Fiera-Esibizione SAIE, Bologna, Italia.
 - 2012 **Member of the committee, chairman and speaker**
Conference "Zero Energy Buildings Summer School Open Day", Politecnico di Milano

- 2012 **Speaker**
"1st International Conference on Solar Heating and Cooling for Buildings and Industry (SHC 2012)", San Francisco, USA.
- 2011 **Invited speaker**
conference ANIE-GIFI "Progettare ed installare il fotovoltaico a regola d'arte", Enersolar+ 2011, Fiera Milano Rho, Italia.
- 2011 **Invited speaker**
conference ANIE-GIFI "Progettare ed installare il fotovoltaico a regola d'arte", Clima Expo 2011, Roma, Italia.
- 2010 **Invited speaker**
MCE 2010 - Conference Expocomfort, "Tecnologie efficienti e possibili per il Social Housing Zero Emissioni", Fiera Milano Rho, Italia.
- 2010 **Invited speaker**
Conference "Tecnologie, tecniche impiantistiche e mercato del fotovoltaico", promosso da AEIT-AEE, IEEE (IE/IA/PEL e PE) Italy Chapters, Università degli Studi di Padova, Padova, Italia.
- 2009 **Speaker**
"2nd International Conference on Clean Electrical Power", Capri, Italia.
- 2009 **Speaker**
Conferenza Energy Forum - Solar Architecture and Urban Planning, Bressanone, Italia
- 2007 **Speaker**
"International Conference on Clean Electrical Power (ICCEP 2007)", Capri, Italia.
- 2006 **Speaker**
convegno "Symposium on Thermal-Fluid-Dynamics and Energy Engineering - ASME ATI Conference 2006", Milano, Italia.
- 2006 **Invited speaker**
convegno "CasaClima - Costruire il Futuro", Fiera di Bolzano, Bolzano, Italia.
- 2005 **Speaker**
"60° Congresso Nazionale ATI 2005", Roma, Italia.
- 2005 **Invited speaker**
conferenza "2005 International Conference on Sustainable Development", School of Architecture, University of Tianjin, China.
- 2005 **Speaker**
"1st International Conference on Passive and Low Energy Cooling for the Built Environment", Santorini, Greece.
- 2004 **Speaker**
conferenza "Eurosun 2004 - 14 Internationales Sonnenforum", Freiburg, Germany.
- 2003 **Speaker**
conferenza "ISES Solar World Congress 2003", Göteborg, Sweden.
- 2002 **Speaker**
conferenza "EPIC 2002 AIVC", Lyon, France.
- 2002 **Speaker**
"Conference and Exhibition PV in Europe from PV Technology to Energy Solutions", Roma, Italia
- 2002 **Speaker**
conferenza "4th ISES Europe Solar Congress EuroSun 2002", Bologna, Italia.
- 2001 **Invited speaker**
conferenza "Architetture di Vetro e Metallo", Editoriale ELSEVIER, Milano, Italia.

PERSONAL SKILLS AND

COMPETENCES

Mother tongue Italian

Other language

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C1	C1	C1	C1	C1
German	B1	C1	B1	B1	B1

Levels: A1/A2: Base - B1/B2: Intermediate - C1/C2: Advanced

Social skills and competences Excellent communication skills acquired during intensive experience as a lecturer and speaker.

Management skills and competences Ability to coordinate, manage and conduct the research, teaching and professional activities.
Ability to organize own tasks and those of staff within a team.
Leadership: currently coordinating a team of 8 people.

OTHER INFORMATION

Awards

- "European Solar Prize 2014 - Italian Section" for the "Urban Project NZEB TerraCielo", with C. Del Pero, EUROSOLAR Italia.
- Honorable mention for the reproducibility of the project "ERGO Tower" under the Zerofootprint Reskinning Award 2011, Green Building Council Conference and Expo, Toronto.
- "3rd Best Paper presented by Young Researchers: The Sino-Italy Environment & Energy Building (SIEEB): A Model for a New Generation of Sustainable Buildings", con R. Adhikari, 1st International Conference on Passive and Low Energy Cooling for the Built Environment, Santorini. 2005.
- The experimental project "Hybrid Solar Facade of the Fiat Research Center", carried out by Niccolò Aste as an application development of his PhD thesis "Designing a hybrid Photovoltaic-thermal collector integrable in the building envelope", was included in the PV review DATABASE (<http://www.pvdatabase.org>), curated by the European PV-UP-SCALE Consortium and by the International Energy Agency, as a case study (Best Practice)

Reviewer Reviewer of the following international Journals

- Applied Energy, Elsevier Editorial System, ISSN: 0306-2619.
- International Journal of Energy Research, John Wiley & Sons, ISSN: 1099-114X.
- Journal of Solar Energy Engineering, American Society of Mechanical Engineers, ISSN: 0199-6231
- Journal of Renewable and Sustainable Energy, American Institute of Physics Publishing, ISSN: 19417012
- Sustainable Cities and Society, Elsevier Editorial System, ISSN: 2210-6707
- Energy Conversion and Management, Elsevier Editorial System, ISSN: 0196-8904
- Energy Efficiency, Springer, ISSN: 1570-646X.
- Energy Policy, Elsevier Editorial System, ISSN: 0301-4215.
- Progress in Photovoltaics: Research and Applications, Wiley InterScience, ISSN: 1062-7995

Patents Co-owner of the patent "Apparato Elettrogeno Policombustibile A Cogenerazione E Relativo Kit Di Conversione" filed with the application number 102016000011377 at the Ministry for Economic Development.

- Studies and research conducted at the Politecnico di Milano by Niccolò Aste on the hybrid

photovoltaic-thermal systems, and in particular the results of his doctoral thesis "Design of a hybrid photovoltaic and thermal collector integrated in the building envelope" have led the development of Solarizzato Integrale Solar Roof System, produced by Secco Sistemi SpA

Gli studi e le ricerche condotti presso il Politecnico di Milano da Niccolò Aste sui sistemi ibridi fotovoltaico-termici e, in particolare, i risultati emersi dalla sua tesi di dottorato "Progettazione di un collettore ibrido fotovoltaico-termico integrabile nell'involucro edilizio" hanno costituito la base per lo sviluppo del sistema Tetto Integrale Solarizzato, prodotto dall'azienda Secco Sistemi S.p.A.

- The research program "Development of an experimental window with integrated energy performance" , under the scientific direction of Niccolò Aste, was the basis for the production of the SUNGATE window by the company FBS s.r.l.

- Co-founder and shareholder of ZH Srl, a spin-off of the Politecnico di Milano

Scientific committee

- Director of the Scientific and Editorial Committee of the Journal "Impianti Solari", editorial group Tecniche Nuove, Milan, ISSN 2035-1321.

- President of the "Solar Technologies and Project Quality Award" Award: Photovoltaic integration in architecture, promoted by the Gestore dei Servizi Energetici dalla and the Direzione Generale per il Paesaggio, le Belle Arti, l'Architettura e l'Arte Contemporanee and the Ministero per i Beni e le Attività culturali. 2010.

- Member of the technical commission for the evaluation of the projects submitted for admission to the concession provided by art. 5 of D. M. July 20, 2000, no. 337, established by director decree DEC / DSA / 2007/0105 of 9/2/2207, Ministry of the Environment and the Protection of the Territory and Sea, Rome. 2007.

- Member of the technical commission for evaluating the projects submitted for the funding under the Tender High-quality architectural landscaping photovoltaic plants and their high replicability in public bodies, Ministry of the Environment and the Protection of the Territory and Sea, Roma. 2007 – 2008.

PUBLICATIONS

- Books**
- Il fotovoltaico in Architettura – L'integrazione dei sistemi per la generazione di elettricità solare - 3a edizione ampliata ed aggiornata ; Gruppo Editoriale Esselibri-Simone; N. Aste; Napoli, 2008
- Impianti solari termici. Manuale per ingegneri, architetti, installatori, Editoriale Delfino; N. Aste; Milano 2007
- Il fotovoltaico in Architettura – L'integrazione dei sistemi per la generazione di elettricità solare - 2a edizione ampliata; Gruppo Editoriale Esselibri-Simone; N. Aste; Napoli, 2006
- Il fotovoltaico in Architettura – L'integrazione dei sistemi per la generazione di elettricità solare; Gruppo Editoriale Esselibri-Simone; N. Aste; Napoli, 2002
- Books' contribution**
- SET4food guidelines on sustainable energy technologies for food utilization in humanitarian contexts and informal settlements; J. Barbieri, E. Colombo, J. N. Mungwe, F. Riva, A. Berizzi, C. Bovo, N.Aste, E. Colombo, C. Del Pero, R. S. Adhikari, et al.; Dipartimento di Energia, Politecnico di Milano, Milano, 2015
- Sustainable Building Design For Tropical Climates - Principles and Applications for Eastern Africa; Butera et al.; UNON, Publishing Services Sectio, Nairobi, 2014
- Tecnologie solari integrate nell'architettura; N. Aste, L. Tagliabue, S. Torri; Wolters Kluwer; Assago 2013
- Almanacco dell'Architetto - da un'idea di Renzo Piano, F.M. Butera, N. Aste, Proctor editore, Bologna, 2012
- Energia sostenibile e fonti rinnovabili, N. Aste, C. Del Pero; IPSOA - Gruppo Wolters Kluwer, Milano 2012
- Photovoltaics in the urban environment; F. Tilli, M. Pellegrino, A. Berni, N. Aste; Earthscan, London, 2009
- L'innovazione tecnologica per un'architettura sostenibile, N. Aste, Liguori Editore, Napoli, 2003
- The challenge of sustainability, G. Chiesa, N. Aste, M. Nebuloni; Foxwell & Davies Italia; Napoli 2003
- Innovazione costruttiva nell'architettura sostenibile; N. Aste; EdilStampa, Roma, 2003
- Gli Impianti in Architettura, N.Aste; UTET; Torino, 2000
- Papers on international Journals**
- Dynamic thermal and hygrometric simulation of historical buildings: Critical factors and possible solutions. Akkurt, GG; Aste, N; Borderon, J; Buda, A; Calzolari, M; Chung, D; Costanzo, V; Del Pero, C; Evola, G; Huerto-Cardenas, HE; Renewable and Sustainable Energy Reviews, 114, 2020
- Life Cycle Sustainability Assessment in Building Energy Retrofitting; A Review, Toosi H., Lavagna M. N. Aste, C. Del Pero, F. Leonforte, Sustainable Cities and Society, 2020
- Parametric energy performance analysis and monitoring of buildings-HEART project platform case study, M. Manfren, N. Aste, SR. S. Adhikari, M.Buzzetti, C. Del Pero, F. Leonforte, L. Zhixing, Sustainable Cities and Society, 2020
- Smart Buildings Features and Key Performance Indicators: A Review, J. Al Dakheel; C. Del Pero, N. Aste, F. Leonforte, Sustainable Cities and Society, 2020
- Energy assessment and monitoring of a novel photovoltaic-thermal (PVT) collector designed for solar-assisted heat pump systems, A. Miglioli, F. Leonforte, C. Del Pero, N. Aste, L. Croci, G. Besagni.
- A renewable energy scenario for a new low carbon settlement in northern Italy: Biomass district heating coupled with heat pump and solar photovoltaic system, N. Aste, P. Caputo, C. Del Pero, G. Ferla, HE. Huerto-Cardenas, F. Leonforte, A. Miglioli. Energy, 2020
- Microclimatic monitoring of the Duomo (Milan Cathedral): Risks-based analysis for the conservation of

its cultural heritage. N. Aste, S. Della Torre, R. S. Adhikari, M. Buzzetti, C. Del Pero, F. Leonforte *Building and Environment*, 148, 240-257, 2019

Triggering a large scale luminescent solar concentrators market - The Smart Window Project. N. Aste, C. Del Pero, M. Buzzetti, D. Testa, R. Fusco, F. Leonforte, *Journal of Cleaner Production*, 219, 35-45, 2018

Color rendering performance of smart glazings for building applications. N. Aste, F. Leonforte, A. Piccolo, *Solar Energy*, 176, 51-61, 2018

Energy storage key performance indicators for building application, C. Del Pero, N. Aste, H. Paksoy, F. Haghghat, S. Grillo, F. Leonforte. *Sustainable cities and society*, 40, 54-65, 2018

Glazing's techno-economic performance: A comparison of window features in office buildings in different climates. N. Aste, M. Buzzetti, C. Del Pero, F. Leonforte, *Energy and Buildings*, 159, 123-135, 2018.

A novel stochastic energy analysis of a solar air heater: case study in solar radiation uncertainty, H. J. Samavi, A. M. Nikbakht, A. Hasanpour, F. Shahbazi, N. Aste, F. Leonforte, *Energy Systems*, 1-21, 2017.

Innovative energy solutions for improving food preservation in humanitarian contexts: A case study from informal refugees settlements in Lebanon, N. Aste, J. Barbieri, A. Berizzi, E. Colombo, C. Del Pero, F. Leonforte, M. Merlo, F. Riva, *Sustainable Energy Technologies and Assessments*, 2017

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Wet Curtain Wall: A Novel Passive Radiant System for Hot and Dry Climates, F. Butera, N. Aste; RS. Adhikari, C. Del Pero, F. Leonforte, A. Zanelli, *Energy Procedia*, 2017

CFD Comfort Analysis of a Sustainable Solution for Church Heating, Energy, N. Aste, S. Della Torre, RS. Adhikari, M. Buzzetti, C. Del Pero, F. Leonforte, H. Huerto, *Procedia*, 2017

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The first Italian BIPV project: Case study and long-term performance analysis, N. Aste, C. Del Pero, and F. Leonforte, *Solar Energy*, 2016

Sustainable church heating: The Basilica di Collemaggio case-study, N. Aste, S. Della Torre, R. S. Adhikari, M. Buzzetti, C. Del Pero, M. Manfren, F. Leonforte, *Energy and Buildings*, 2016

Energy efficiency in buildings: What drives the investments? the case of Lombardy Region N. Aste, M. Buzzetti, P. Caputo, M., Fattore, *Sustainable Cities and Society*, 2016

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Design, modeling and performance monitoring of a photovoltaic-thermal (PVT) water collector, N. Aste, F. Leonforte, C. Del Pero, *Solar Energy*, 2015

District heating in Lombardy Region (Italy): Effects of supporting mechanisms, N. Aste, M. Buzzetti, P.

Caputo, Sustainable Cities and Society, 2015

Performance analysis of a large-area luminescent solar concentrator module, N. Aste, L.C. Tagliabue, C. Del Pero, D. Testa, R. Fusco, Renewable Energy, 2015

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Development and testing of a multi-fuel micro-CHP conversion kit, N. Aste, C. Del Pero, M. Maistrello, P. Caputo, Sustainable Cities and Society, 2015

PV technologies performance comparison in temperate climates, N. Aste, C. Del Pero, F. Leonforte, Solar Energy, 2014

Local energy efficiency programs: A monitoring methodology for heating systems, N. Aste, M. Buzzetti, P. Caputo, M. Manfren, Sustainable Cities and Society, 2014

Water flat plate PV-thermal collectors: A review, N. Aste, C. Del Pero, F. Leonforte, Solar Energy 2014

A simplified model for the estimation of energy production of PV systems, N. Aste, C. Del Pero, F. Leonforte, M. Manfren, Energy, 2013

Cost optimal analysis of heat pump technology adoption in residential reference buildings, N. Aste, R. S. Adhikari, M. Manfren, Renewable Energy, 2013

Energy retrofit of commercial buildings: case study and applied Methodology, N. Aste, C. Del Pero, Energy Efficiency, 2013

Energy and environmental impact of domestic heating in Italy: Evaluation of national NOx emissions, N. Aste, R. S. Adhikari, J. Compostella, C. Del Pero, Energy Policy, 2013

Calibration and uncertainty analysis for computer models - A meta-model based approach for integrated building energy simulation M. Manfren, N. Aste, R. Moshksar, Applied Energy, 2013

An Algorithm for Designing Dynamic Solar Shading System, N. Aste, R.S. Adhikari, C. Del Pero, Energy Procedia, 2012

Comparative energy and economic performance analysis of an electrochromic window and automated external venetian blind, N. Aste, J. Compostella, M. Mazzon, Energy Procedia, 2012

District heating: results of a monitoring campaign in Lombardy Region, Aste N., Caputo P., Buzzetti M., Energy Procedia, 2012

Optimization of solar thermal fraction in PVT systems, N. Aste, C. Del Pero, F. Leonforte, Energy Procedia, 2012

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Thermal-electrical optimization of the configuration a liquid PVT collector, N. Aste, C. Del Pero, F. Leonforte, Energy Procedia, 2012

Energy retrofit of historical buildings: An Italian case study, N. Aste, R.S. Adhikari, M. Buzzetti, Journal of Green Building, 2012

Impact of domestic and tertiary buildings heating by natural gas in the Italian context, N. Aste, C. Del Pero, Energy Policy, 2012

Energy savings through variable speed compressor heat pump systems, N. Aste, R.S. Adhikari, M. Manfren, D. Marini, Energy Procedia, 2012

Multi-commodity network flow models for dynamic energy management - Smart Grid applications, R.S. Adhikari, N. Aste, M. Manfren, Energy Procedia, 2012

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Optimization concepts in district energy design and management - A case study, R.S. Adhikari, N. Aste, M. Manfren, Energy Procedia, 2012

Nomograph for rapid technical and economic assessment of solar thermal systems for DHW production, N. Aste, M. Beccali, L. Tagliabue, Solar Energy, 2012

Technical and economic performance analysis of large-scale ground-mounted PV plants in Italian context, N. Aste, C. Del Pero, Progress in Photovoltaics: Research and Applications, 2010

Beyond the EPBD: The Low Energy Residential Settlement Borgo Solare, N. Aste, R.S. Adhikari, M. Buzzetti, Applied Energy, 2010

The influence of the external walls thermal inertia on the energy performance of well insulated buildings, N. Aste, A. Angelotti, M. Buzzetti, Energy and Buildings, 2009

Design, Development and Performance Monitoring of a Photovoltaic-Thermal (PVT) Air Collector, N. Aste, G. Chiesa, F. Verri, Renewable Energy, 2008

Evaluation of Energy Policies for Promotion and Dissemination of Photovoltaic Technology in Italy, N. Aste, R.S. Adhikari, L.C. Tagliabue, Progress in Photovoltaics: Research and Applications, 2007

Building Integrated Solar Roof: CRF Hybrid Facade Case Study, F. Butera, R.S. Adhikari, N. Aste and R. Bracco, Journal of the Solar Energy Society of India, 2005

Integrating photovoltaic systems in buildings: Costs, N. Aste, Finestra International, 1997

Integrating photovoltaic systems in buildings: Technology N. Aste, Finestra International, 1996

Papers on national Journals

L'applicazione pratica di un metodo di riqualificazione energetica sviluppato dal Politecnico di Milano: il recupero di ERGO a Milano, N. Aste, Modulo, 2012

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Fotovoltaico obbligatorio, N. Aste, FotoVoltaici, 2009

Integrazione nell'edilizia: stato dell'arte in Italia, N. Aste, Giornale dell'Ingegnere, 2009

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Efficienza energetica: normative locali e fotovoltaico, N. Aste, FotoVoltaici, 2008

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Verso un'Architettura (fotovoltaica), N. Aste, C. Del Pero, Progettare – Architettura Città Territorio, 2007

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Il progetto architettonico degli impianti ad energia solare, N. Aste, Il Progetto Sostenibile, 2007

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Sistemi ibridi. Solare a due face, N. Aste, C. Del Pero, FotoVoltaici, 2007

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Il Sole è di casa. Le nuove frontiere: sistemi solari integrati e ibridi, N. Aste, QualEnergia, 2007

Terziario e Industriale. L'edilizia sostenibile Avanza, N. Aste, Arketipo, 2007

Monitoraggio delle prestazioni: il passo che manca, N. Aste, FotoVoltaici, 2007

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- Facoltà di Architettura Leonardo - Un impianto fotovoltaico da 11,25 kWp, N. Aste, F. Groppi, FotoVoltaici, 2002
- Il tetto fotovoltaico, N. Aste, Il Tetto, 2002
- Oltre il fotovoltaico – I sistemi ibridi PV/Th, N. Aste, Nuova Finestra, 2001
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- La riqualificazione energetica del costruito – Considerazioni generali, N. Aste, C. Sangiorgi, Recuperare l'Edilizia, 1998
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- Electrical characterization and comparison of a novel covered PVT collector. F. Leonforte*, C. Del Pero*, N. Aste* and A. Miglioli, "Clean Electrical Power (ICCEP), 2019 7th International Conference on"
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- Smart-grid and smart-districts: Case-study and techno-economic analysis, N. Aste, R.S. Adhikari, P. Caputo, C. Del Pero, M. Buzzetti, F. Leonforte, "Clean Electrical Power (ICCEP), 2017 6th International Conference on", 23-29, 2017, IEEE

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