CURRICULUM VITAE OF MICHELANGELO SCORPIO

Assistant Professor of Environmental Technical Physics (Disciplinary Scientific Sector ING-IND/11)
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EDUCATION AND TRAINING

- *09/03/2016*

Attended the convention "Smart Community Project in Japan" organized by the University of Sannio (Italy)

- *16/12/2014:*

Ph.D. Diploma on "Environment and structures representation, protection and safety and land management" (XXVIIth cycle, Scientific Disciplinary Sector ING-IND/11) at the Second University of Naples, Department of Architecture and Industrial Design "Luigi Vanvitelli" (Aversa, Italy). Title of final thesis: "Development and prototyping of a LED based luminaire". Tutor: Prof. Eng. S. Sibilio.

- *from 09/07/2012 to 13/07/2012:*

Attended the fifth edition of the Summer School on Thermodynamics titled "Engineering of the internal environment: Applied Acoustics and Lighting" organized by the University of Sannio (Benevento, Italy).

- *year 2009:*

Achievement of professional engineering license and enlisted to the register of Professional Engineers of the province of Caserta.

- *year 2008:*

Master's Degree in Mechanical Engineering (5-year degree) at the University of Naples Federico II (Italy).

WORK EXPERIENCES

- *from 17/09/2018 up to date*

Assistant Professor of Environmental Technical Physics (Disciplinary-scientific sector "ING-IND/11 – Environmental Technical Physics") at the Department of Architecture and Industrial Design of the University of Campania "Luigi Vanvitelli".

- *from 01/08/2016 to 31/07/2017:*

Research Fellow at the Department of Engineering of University of Sannio (Scientific Disciplinary Sector ING-IND/11).

Title: "Characterization of SMART window for visual comfort and energy saving"

- *from 01/08/2015 to 31/07/2016:*

Research Fellow at the Department of Engineering of University of Sannio (Scientific Disciplinary Sector ING-IND/11).

Title: "Characterization of SMART window for visual comfort and energy saving"

ACADEMIC ACTIVITIES

- *year 2019:*

Member of the examination board for assigning a 3 months scholarship at the Department of Architecture and Industrial Design of the University of Campania "Luigi Vanvitelli".

DIDACTIC ACTIVITIES

- *academic year 2021-22, 2022-2023*

  Tenured teacher of the course "Applied Thermodynamics" for students of the "Design and Communication" bachelor's degree course at the University of Campania "Luigi Vanvitelli".
- *academic year 2018-19, 2019-20, 2020-21*

  Tenured teacher of the course "Built Environment Control Technique" for students of the "Architecture" master's degree course at the University of Campania "Luigi Vanvitelli".
- *year 2016:*

  Contract as teacher of the course "EXAM - EXPERT IN AVIATION MAINTENANCE" within the national project titled "PON MAVER".

SCIENTIFIC ACTIVITIES

- Member of the research group "Acoustics, Vibration and multisensory Interactions – ACOUVI", at the Department of Architecture and Industrial Design of the University of Campania "Luigi Vanvitelli".
- Member of the research group "Energy Efficiency & Environment - E3 (Efficienza Energetica ed Ambiente)", at the Department of Architecture and Industrial Design of the University of Campania "Luigi Vanvitelli".
- Reviewer for the following international journal:
  - Applied Energy
  - Environments
  - Energies
  - Applied Sciences
  - Buildings
  - Sustainability

ATTENDANCE/ORGANIZATION OF NATIONAL AND INTERNATIONAL MEETINGS/CONFERENCES

- *June 15-17, 2017*

Attended the international congress "WORLD HERITAGE and DISASTER Knowledge, Culture and Representation Le Vie dei Mercanti XV Forum Internazionale di Studi".

- *June 09-10, 2016*

Attended, with oral presentations, the international congress "10th AIGE 2016 and 1st AIGE/IIETA International Conference "Energy Conversion, Management, Recovery, Saving, Storage and Renewable Systems" Napoli (Italy).

- *June 14-17/06/2015*

Attended, with oral presentations, the international congress "6th International Building Physics Conference - IBPC 2015 on Building Physics for a Sustainable Built Environment".

- *June 12-14, 2014*

Attended, with oral presentations, the international congress ""Best practices in heritage conservation and management From the world to Pompeii Le vie dei Mercanti _ XII Forum Internazionale di Studi"", the Second University of Naples (Italy).

- *September 17-19, 2013*

Attended, with oral presentations, the international congress "Lux Europa 2013: 12th European Lighting Conference", Jagiellonian University (Cracow, Poland).

- *June 13-15, 2013*

Attended, with oral presentations, the internazional congress “Heritage Architecture Landesign focus on Conservation Regeneration Innovation Le vie dei Mercanti XI Forum Internazionale di Studi” the Second University of Naples (Italy).

- *April 15-17, 2013*

Attended, with oral presentations, the international congress “MICROGENIII - The 3rd edition of the International Conference on Microgeneration and Related Technologies”, the Second University of Naples/University of Sannio (Italy).

MAIN RESEARCH ACTIVITIES

The main research activities concern experimental and simulation analysis of micro-polygeneration systems, artificial LED lighting systems and smart windows:

- experimental analysis of performance during both steady-state and transient operation of internal combustion engine-based micro-cogeneration systems, absorption chillers for domestic application, electric heat pumps and gas heat pumps under different operating conditions;
- modeling of micro-cogeneration systems, absorption chillers, electric heat pumps, gas heat pumps. Modeling is performed by using the software TRNSYS and/or software Matlab;
- dynamic simulation of building-integrated micro-polygeneration systems upon varying the operating scenario (climatic conditions, building load profiles, control logics, etc.) by means of the software TRNSYS;
- energy, environmental and economic analyses of micro-polygeneration systems;
- experimental analysis and simulation of scale models of buildings for a correct use of daylight;
- experimental analysis and simulation of artificial lighting systems for indoor and outdoor illumination;
- experimental analysis and simulation of luminaires using LED (Light Emitting Diode);
- experimental characterization of thermal and visual performances of electric driven full scale smart window;
- dynamic simulation of electric driven smart window upon varying operating scenario (control logic, climatic conditions, smart window types, etc)

The research activities are performed in the “Built environment control laboratory Ri.A.S.” (http://www.labrias.unina2.it/eng/english.html). The section of the laboratory focusing on the fields of energy efficiency and lighting is equipped with the following main components and sensors: 1) 6.0 kW reciprocating internal combustion engine-based micro-cogeneration unit, 2) absorption heat pump with nominal cooling capacity of 10 kW, 3) gas heat pump with nominal cooling/heating capacity of 56/67 kW, 4) air-to-water electric vapor-compression refrigerating machine with nominal cooling capacity of 7.5 kW, 5) hot water storage with nominal capacity of 1000 liters, 6) temperature, pressure and volumetric flow sensors, 7) thermal flux meters, 8) thermographic camera, 9) luminance meter, 10) illuminance meter, 11) video photometer, 12) spectroradiometer, 13) spectrophotometer, 14) chroma meter.

SCIENTIFIC PUBLICATIONS

Co-author of more than 90 publications on peer-reviewed national and international journals as well as proceedings of peer-reviewed national and international conferences.

Date
13/04/2023