CURRICULUM VITAE

Personal Information

Najafi, Behzad

Gender Male | Marital Status: Married Nationality Italian

Behzad.najafi@polimi.it, 20162, Milano, Italy

Education and Training

January 2013-Februray 2016 — PhD in Energy and Nuclear Science and Technology
Politecnico di Milano, Milan, Italy (Dottorato con Merito)

October 2010-December 2012 — Master of Science in Energy Engineering
Politecnico di Milano, Milan, Italy (GPA: 110/110)

September 2005-July 2010 — Bachelor of Science in Mechanical Engineering (Thermo-fluids)
K. N. Toosi University of Technology, Tehran, Iran (GPA: 17.28/20)

Professional Experience

Department of Energy, Politecnico di Milano

March 2024 - Present — Associate Professor (Professore Associato)
October 2021 – February 2024 — Assistant Professor (Ricercatore a Tempo Determinato Senior (tipo B))
April 2019 – September 2021 — Research Fellow (Ricercatore a Tempo Determinato Junior (tipo A))
March 2016 - March 2019 — Adjunct Professor (Professore a Contratto)
November 2016 - October 2018 — Post-doctoral Fellow (Polimi Postdoctoral Fellow – PIF)
January 2016 - October 2016 — Research Fellow (Assegnista di Ricerca)
January 2013 - February 2016 — PhD Applicant (Dottorando)
February 2012 - December 2012 — Research Collaborator (Collaborazione coordinata e continuativa)

MUSP (Macchine Utensili e Sistemi di Produzione) Laboratory

July 2011 - January 2012 — Research Collaborator

Research Metrics

Scopus (May 2024) — 45 ISI Journal Publications, 2319 citations, h index : 23

Awards and Honours

2024 — One conf. papers recognized as conference's best paper
2023 — Two conf. papers (C1 & C2) recognized as conference's best paper
2016 — International Postdoctoral Fellowship, Politecnico di Milano

Teaching Experience

10 Academic years, 2015/2016 – 2025/2025 — Energy and Environmental Technologies for Building Systems (8 CFU)
M.Sc. Program in Energy Engineering, Politecnico di Milano

6 Academic years, 2019/2020-2024/2025 — Sustainable Energy Systems and Processes (4 CFU)
M.Sc. Program in Sustainable Architecture and Landscape Design
Politecnico di Milano (previously entitled Technical Environmental Systems)

Thesis Supervision

- 3 PhD theses: 1 graduated (as the main supervisor), 2 ongoing (1 as the main supervisor, 1 as the co-supervisor hosted at NTNU)
- 40 M.Sc. theses: 29 as the main supervisor, 11 as the co-supervisor

Research Interests

- Physical phenomena-inspired data-driven predictive modelling of the thermal behavior of indoor environments, HVAC systems, aiming at real-time setpoint optimization (with specific focus on commercia buildings & warehouses)
- Physical and data-driven dynamic modelling of industrial boilers aiming at optimal sizing and optimal adaptive multi-setpoint strategy implementation considering the corresponding demand profiles
- Physical/data-driven modelling, predictive simulation, adaptive long-term performance optimization, and (multi-objective) exergetic/economic/environmental optimization of fuel cell based cogeneration plants and refrigeration systems.
- Techno-economic optimization of hybrid (fossil-renewable) generation systems for off-grid communities.
- Physical phenomena-inspired data-driven simulation of two-phase flows' behavior (pressure drop, heat transfer, and flow regime)

Research Activities
(2016-Present)

-Physical phenomena-inspired data-driven predictive modelling of the thermal behaviour of indoor environments, HVAC systems (with a specific focus on commercial buildings and warehouses), and the buildings connected to district heating systems (together with the corresponding generation and distribution sides); key objective: real-time setpoint optimization.

- Machine-learning based estimation of buildings' characteristics and HVAC loads from the corresponding consumption profiles.

Partners and collaborators: SINTEF, SIRAM (Veolia SpA), Norwegian University of Science and Technology Concordia University (Canada), Western Norway University of Applied Sciences, Edilclima S.r.l.,

Related Supervised PhD thesis:

2) Farzad Dadras Javan (since Nov. 2021; ongoing) Machine learning-based modeling and real-time setpoint optimization in buildings for consumption reduction and facilitating demand flexibility

3) Italo A. C. Avendano (since 2022; ongoing): Upgrading smartness level of smart buildings with effective use of ICT, institution: NTNU, role: co-supervisor

Related Supervised M.Sc. theses:

T40) Alessia De Chirico (2024, as the co-supervisor) Green warehousing and energy efficiency within the food and beverage industry: a simulation-based approach for warehouse decarbonization with case study investigation

T39) Ali Kaboli (2024) Machine-Learning-Based Predictive Modeling of Morning Ramp-up for Energy Performance Improvement in Warehouses

T38) Shahab Pouryazdanpanah Kermani (2024) Techno-Economic Assessment and Calculation of Photovoltaic Generation Self-Consumption Improvement Through Installation of a Heat Pump-Based Heating System In a Retail Building

T37) Laith Omran Hisham Al Gazali (2024) Machine Learning-Based Estimation of Air-Conditioning Load Using Historical Sub-Metered Data: Case Study of a Restaurant Complex in Qatar

T36) Saeid Mohammadi Zive (2024) Multi-horizon Indoor Temperature Forecasting Using Machine Learning

Aiming at Predictive Modelling of Morning Ramp-up Interval in Commercial Buildings

T35) Emanuele Mazzili, Edoardo Gronda (2023, as the co-supervisor), Energy efficiency and environmental impact reduction at logistics facilities: conceptualization and development of a simulation-based assessment on real cases applications

T34) Italo A. Campodonico (2022) Development of IoT-driven Machine learning based pipelines for predictive modelling of ramp-up and ramp-down processes in indoor environments aiming at energy efficiency enhancement

T33) Dimitrios Papadopoulos (2022) Data reproduction in smart buildings utilizing optimized sliding window-based machine learning models

T32) Shayan Keyvanmajd (2022) Intervention Assessment and Predictive Modeling of Boiler's Behavior in a Smart Building Employing Machine Learning

T31) David Garrido Salgado (2022) Ramp-up Duration Estimation in a Smart Building utilizing Sliding Window-based Machine Learning

T30) Hamed Khatam (2022) Data-driven Window Opening Detection and Occupancy Status Estimation

T29) Arian Maghsoudnia (2022) Deep learning-based pipelines for occupancy driven smart ramp-up implementation in commercial buildings

T28) Gianluca Gennaro Lorusso (2021) Data-driven Dynamic Behaviour Modelling of the Boiler and the Air Handling unit's Recuperator in a Smart Building

T27) Ramiro Criach(2021), Optimization of Machine Learning-based Pipelines for Indoor Temperature Forecasting in a Set-point Management Strategy for a Smart Building's Cooling System

T26) Farzad Dadras Javan (2021) Optimization of Machine Learning based Pipelines for Weather-Normalized Intervention Assessment and Ramp-Up Time Estimation in a Smart Building System

T25) Giulia Moret (2021): Determination of the Most Promising Feature Sets in Machine Learning based Pipelines for Predictive Thermal Behaviour Modelling of Indoor Spaces;

T24) Lidia Premoli Vilà (2020) Bottom-up modelling of Italian residential sector: Development, validation, and application in evaluation of decarbonisation scenarios

T23) Farshad Hassanabadi (2020): Machine learning based predictive modelling and implementation of control strategies aiming at PV self-consumption enhancement using a heat pump-based heating system;

T22) Giovanni Temporelli (2020): Data-driven dynamic modelling and implementation of an improved control strategy for a geothermal heat pump based heating system in a nearly zero energy building;

T21) Luca di Narzo (2020): Machine learning based estimation of air-conditioning loads using smart meter data;

T20) Monica Depalo (2020) Explainable machine learning based estimation of commercial buildings' characteristics by analysing temporal consumption profiles;

T19) Debayan Paul (2020): Benchmarking the methodologies for solar irradiance estimation on vertical planes aiming at glazed building facade design;

T18) Arun Shaju (2019): Machine learning based building characteristics and performance estimation through analysing consumption profiles;

T17) Farshad Bolourchifard (2019) Application of Deep Learning in Thermal Load Forecasting and Data-driven Supply Optimization of a District Heating Network;

T16) Ratomir Dimikj, Darko Micev (2019): Incremental Machine Learning based Load Prediction aiming at Performance Improvement on Day-Ahead Market;

T15) Danish Ahmad Mir - Enoch Nuamah Appiah (2019) Development of optimal machine learning based pipelines for predicting the dynamic thermal behaviour of indoor environments;

T14) Nicolas Fernando Marrugo Cardenas (2019): Deep Learning based Occupancy Prediction and HVAC

behaviour Modelling for Improving Energy efficiency of Commercial Buildings;

T13) Michela Silva (2018): Machine learning based consumption prediction and hourly optimization of the heating system for a hospital complex;

T12) Manoj Manivannan (2017): ML based short-term prediction of AC loads through smart meter analytics.

T10) Lorenzo Benevento (2016) Energy auditing and proposing energy saving measures for an Italian SME through building energy simulation

(2016-Present): Physical/data-driven modelling of heat generation systems (fire-tube boilers) aiming at optimal sizing and developing adaptive multi-setpoint management strategy
Partners and collaborators: ICI Caldaie SpA & End-users: Caseificio Ghidetti, Bolton Manitoba Group, University of Brescia, Idiap Institute (Switzerland),
Related Supervised PhD thesis:
1) Marco Tognoli (2018-2022) Physical/Data-driven dynamic Modelling of fire-tube steam/hot-water boilers along with data-driven demand prediction aiming at real-time optimization of the set-point condition
Related Supervised M.Sc. thesis:
T11) Marco Tognoli (2017): Dynamic modelling, experimental validation, and optimal sizing of industrial fire-tube boilers for various demand profiles.

(2018 – Present) Developing physical phenomena inspired machine-learning based pipelines (using dimensionless parameters) for pressure drop, heat transfer, and flow regime estimation in two phase flows

- ✓ Partners and Collaborators: Multi-phase Laboratory (Polimi)
- ✓ Related Supervised M.Sc. theses:

T9) Alessandro Benetti (2021), tentative title: Machine learning based estimation of flow regimes in two-phase adiabatic flows

T8) Shayan Milani (2021) Machine Learning Based Heat Transfer Estimation of Evaporating and Condensing R134a Flow in Micro-Finned Tubes;

T7) Keivan Ardam (2020) Application of Machine Learning in Pressure Drop Estimation of Two-Phase Adiabatic and diabatic flows: A Dimensionless Approach;

T6) Andrej Hanusovsky (2018) – (As the Co-supervisor): Reproducible machine-learning physical-based models for pressure drop estimation in two phase flows

2011-2020

- Physical/data-driven predictive modelling, adaptive long-term performance optimization, and (multi-objective) exergetic/economic/environmental optimization of fuel cell based cogeneration plants (PEM FC, SOFC, and MCFC) and refrigeration systems;Data-driven fault diagnosis of PEM Fuel cells

-Techno-economic configuration optimization and environmental assessment of hybrid renewable energy systems for rural electrification (Case studies: rural areas in Peru and Colombia).

- ✓ Partners and Collaborators: MRT Fuel Cell Lab, ICI Caldaie SpA (in the context of Microgen30 and STAR projects funded by the Italian Government), University of New South Wales (UNSW).
- ✓ Conducted theses:
  - M.Sc. thesis (2012) Simulation and performance analysis of residential cogeneration systems based on low temperature and high temperature PEM fuel cells;
  - PhD Thesis (2016): Predictive modelling and adaptive long-term optimization of a high temperature PEM fuel cell based micro-CHP system.
- ✓ Supervised M.Sc. Theses:

T5) Farzad Moghaddampour (2019) Feasibility analysis of renewable energy systems for rural electrification in

different climatic zones in Peru.

T4) Paolo Bonomi (2018): Machine learning based fault diagnosis and performance estimation of automotive PEM fuel cells through optimal EIS tests;

T3) Alireza Haghighat Mamaghani (as the co-supervisor, 2015) Simulation, optimization and long term performance analyses of an HT-PEM fuel cell based micro CHP plant;

T2) Gianluca Cimionò (as the co-supervisor, 2015) Modelling of innovative components in a fuel cell based micro-cogeneration plant (translated from the Italian title);
T1) Matteo Magni (as the co-supervisor, 2014), Modelling of a chemical reactor for methane reforming utilized in a fuel cell based micro-cogeneration system (translated from the Italian title).

Thesis Evaluation Committee Membership

2023 — Norwegian University of Science and Technology (NTNU): 3 Mid-term PhD Evaluations, Programs in Electric Power Eng. & Civil/Env Eng.

A..Y. 2020-2021 — Software Engineering M.Sc. Program, Western Norway University of Applied Sciences (Høgskulen på Vestlandet): 2 M.Sc. theses

AY. 2021/2022 — PhD Program in Mechanical and Industrial Engineering, University of Brescia, 4 PhD theses

15 Sessions (Commissioni di Laurea) A.Y. : 2020-2021, 2019-2020, 2018-2019 2017-2018, 2016-2017 — Energy Engineering M.Sc. Program, Politecnico di Milano

Thesis reviewer (contro-relatore) for 8 M.Sc. theses

Admission Committee Membership

Institute — Western Norway University of Applied Sciences (Høgskulen på Vestlandet)

Nov 2020 — Postdoc Position in Data-driven Energy System Analyses

May 2019 — PhD Position in Data Analytics for Smart Grid and Smart City Applications,

Institute — Politecnico di Milano

A.Y.: 2021/ 2022, 2020/ 2021, 2019-2020 2018-2019 — M.Sc. Program in Energy Engineering

Review Services

Reviewer in the following Journals: International Journal of Hydrogen Energy, Applied Energy, Desalination, Cleaner Production

Industrial Projects

2020-2022 — SIRAM (Veolia SpA)
Scope: Implementation of machine learning based pipelines for optimal setpoint management in a medical centre's building aiming at consumption minimization

2016 — Ariston Thermo Group
Scope: Statistical analysis for estimating the lifetime and reliability of residential boilers using accelerated life test.

Language Skills

Persian (Native), English (Fluent), Italian (Fluent)

Software Skills

Proficiency in Python and(Numpy, Pandas, Matplotlib, Sklearn, PySpark modules) MATLAB, SQL based Databases, Linux and Unix shell, and LaTeX.

Publications

Book Chapters

B1) Italo A. C. Avendano, Farzad Javan Dadras**, Behzad Najafi**, Mohammadreza Aghaei, Amin Moazami, Fabio Rinaldi Digital twin technology for energy flexibility and saving, Digital Twin Technology for the Energy Sector **Digital Twin Technology for the Energy Sector: Fundamentals, Advances, Challenges, and Applications, Elsevier (2025)**

B2) Farzad Dadras Javan, Hamed K.B. Sangjoeei, **Behzad Najafi**, A. H. Mamaghani, Fabio Rinaldi, Application of Machine Learning in Occupant and Indoor Environment Behavior Modeling: Sensors, Methods, and Algorithms, **Handbook of Smart Energy Systems (2021), Springer, 1-2**

B3) **Behzad Najafi**, S. Moaveninejad, F. Rinaldi, Data analytics for energy disaggregation: methods and applications, Chapter 17 of the book **Big Data Application in Power Systems, Elsevier**, **2018**, pp. 377-408

Journal Articles:

J1) Farzad Dadras Javan, Italo A. C. Avendano, **Behzad Najafi,** Michele Rossi, Fabio Rinaldi Estimating morning ramp-up duration for the cooling season in a smart building using machine learning: Determining most promising features**, Sustainable Energy Technologies and Assessments 69 (2024)**, 103911

J2) Luca Cannava, Farzad Dadras Javan**, Behzad Najafi,** Sara Perotti, Green warehousing practices: Assessing the impact of PV self-consumption enhancement strategies in a logistics warehouse **Sustainable Energy Technologies and Assessments 72 (2024),** 104054

J3) Ali Kaboli, Farzad Dadras Javan, Italo Aldo Campodonico Avendano, **Behzad Najafi**, Luigi Pietro Maria Colombo, Sara Perotti, Fabio Rinald, Just-in-Time Morning Ramp-Up Implementation in Warehouses Enabled by Machine Learning-Based Predictive Modelling: Estimation of Achievable Energy Saving through Simulation, **Energies 17 (2024),** 4401

J4) Farshad Bolourchifard, Keivan Ardam, Farzad Dadras Javan, **Behzad Najafi**, Paloma Vega Penichet Domecq, Fabio Rinaldi, Luigi Pietro Maria Colombo, **Fluids 9 (2024),** 181

J5) Shayan Milani, Keivan Ardam, Farzad Dadras Javan, **Behzad Najafi**, Andrea Lucchini, Igor Matteo Carraretto, Luigi Pietro Maria Colombo, Heat Transfer Estimation in Flow Boiling of R134a within Microfin Tubes: Development of Explainable Machine Learning-Based Pipelines, **Energies 17 (2024)**, 4074

J6) Italo A. C. Avendano, Farzad Dadras Javan, **Behzad Najafi,** Amin Moazami, Fabio Rinaldi, Assessing the impact of employing machine learning-based baseline load prediction pipelines with sliding-window training scheme on offered flexibility estimation for different building categories, **Energy and Buildings, 294 (2023), 113217**

J7) Farzad Dadras Javan, Italo A. C. Avendano, **Behzad Najafi,** Amin Moazami, Fabio Rinaldi, Machine-Learning-Based Prediction of HVAC-Driven Load Flexibility in Warehouses, **Energies 16 (2023), 5407**

J8) Italo A. C. Avendano, Kamilla Heimar Andersen, Silvia Erba, Amin Moazami, Mohammadreza Aghaei, **Behzad Najafi**, A novel framework for assessing the smartness and the smart readiness level in highly electrified non-residential buildings: A Norwegian case study, **Energy and**

Buildings, 314 (2024), 114234

J9) Farhang Raymand**, Behzad Najafi**, Alireza Haghighat Mamaghani, Amin Moazami, Fabio Rinaldi, Machine learning-based estimation of buildings' characteristics employing electrical and chilled water consumption data: Pipeline optimization, **Energy and Buildings, 295 (2023),** 113327

J10) Demetrios N Papadopoulos, Farzad Dadras Javan, **Behzad Najafi,** Alireza Haghighat Mamaghani, Fabio Rinaldi, Handling Complete Short-term Data Logging Failure in Smart Buildings: Machine Learning based Forecasting Pipelines with Sliding-window Training Scheme, **Energy and Buildings, 301 (2023),** 113694

J11) Debayan Paul, Giuseppe De Michele, **Behzad Najafi**, Stefano Avesani, Benchmarking clear sky and transposition models for solar irradiance estimation on vertical planes to facilitate glazed facade design, **Energy and Buildings** 255 **(2022)**, 111622

J12) Marco Tognoli, Shayan Keyvanmajd, Behzad Najafi, Fabio Rinaldi, Simplified finite volume-based dynamic modeling, experimental validation, and data-driven simulation of a fire-tube hot-water boiler, **Sustainable Energy Technologies and Assessments, 58 (2023),** 103321

J13) Marco Tognoli, **Behzad Najafi**, Andrea Lucchini, Luigi Pietro Maria Colombo, Fabio Rinaldi, Implementation of a multi-setpoint strategy for fire-tube boilers utilized in food and beverage industry: Estimating the fuel saving potential**, Sustainable Energy Technologies and Assessments 53(2022),** 102481

J14) Alessandro Morelli, Marco Tognoli, Antonio Ghidoni, **Behzad Najafi,** Fabio Rinaldi, Reduced Finite volume modelling based on CFD database and experimental validation for thermo-fluid dynamic simulation of flue gases in horizontal fire-tubes, **Heat and Mass Transfer (2022), 194,**

J15) Keivan Ardam, **Behzad Najafi,**, Andrea Lucchini, Fabio Rinaldi, Luigi Pietro Maria Colombo, Machine Learning based Dimensionless Approach for Pressure Drop Estimation of Evaporating R134a Flow in Micro-fin Tubes, **Int. J. of Refrigeration (2021) 131, 20-32**

J16) **Behzad Najafi**, Monica Depalo, Fabio Rinadi, Reza Arghandeh, Building Characterization through Smart Meter Data Analytics: Determination of the Most Influential Temporal and Importance-in-prediction based Features, **Energy and Buildings 234 (2021)**, 110671**.**

J17) Fabio Rinaldi, Farzad Moghaddampour, **Behzad Najafi**, Renzo Marchesi, Feasibility Analysis and Optimization of Hybrid Renewable Energy Systems for Rural Electrification in Different Climatic Zones of Peru**, Clean Technologies and Environmental Policy (2021) 23 (3),** pp. 731-748.

J18) **Behzad Najafi**, Keivan Ardam, Andrej Hanusovsky, Fabio Rinaldi, Luigi Pietro Maria Colombo, Machine Learning based Estimation of Pressure Drop in Two-phase Adiabatic Flow in Micro-finned Tubes: Determination of the most promising dimensionless feature set, **Chemical Engineering Research and Design, 167 (2021)**, pp. 252-267**.**

J19) Giorgio Besagni, Marco Borgarello, Lidia Premoli Vilà, **Behzad Najaf**i, Fabio Rinaldi, MOIRAE – bottom-up model to compute the energy consumption of the Italian residential sector: model design, validation and evaluation of decarbonization pathways**, Energy, 211 (2020)**, 118674.

J20) **Behzad Najafi**, Luca Di Narzo, Fabio Rinadi, Reza Arghandeh, Machine Learning based Estimation of Air-Conditioning Loads Employing Smart Meter Data, **IET Generation, Transmission & Distribution, 2020, 14(21),** pp. 4755 – 4762.

J21) **Behzad Najafi,** Paolo Bonomi, Andrea Casalegno, Fabio Rinaldi, Andrea Baricci, Rapid Fault Diagnosis of PEM Fuel Cells through Optimal Electrochemical Impedance Spectroscopy Tests, **Energies 13 (14), 2020,** 3643.

J22) Marco Tognoli**, Behzad Najafi**, Renzo Marchesi, Fabio Rinaldi, Dynamic modelling, experimental validation, and thermo-economic analysis of industrial fire-tube boilers with stagnation point reverse flow combustor **Applied Thermal Engineering, 149 (2019),** pp. 1394-1407.

J23) Alireza H. Mamaghani, **Behzad Najafi,** Andrea Casalegno, Fabio Rinaldi, Optimization of an HT-PEM fuel cell based residential micro combined heat and power system: A multi-objective approach, **Journal of Cleaner Production, 180 (2018),** pp. 126-138.

J24) Marco Tognoli**, Behzad Najafi**, Fabio Rinaldi, Dynamic modelling and optimal sizing of industrial fire-tube boilers for various demand profiles**, Applied Thermal Engineering, 132(2018)**, pp. 341-351.

J25) Manoj Manivannan, **Behzad Najafi**, F Rinaldi, Machine Learning-Based Short-Term Prediction of Air-Conditioning Load through Smart Meter Analytics, **Energies 10 (11), 2017,** pp. 1905.

J26) Alireza H. Mamaghani, **Behzad Najafi,** Fabio Rinaldi, Andrea Casalegno, Predictive Modelling and Adaptive Long-term Optimization of an HT-PEM Fuel Cell based Micro Combined Heat and Power System**, Applied Energy, 192 (2017),** pp. 519-529.

J27) Alireza H. Mamaghani, Sebastian A. A. Escandon, **Behzad Najafi,** Ali Shirazi, Fabio Rinaldi, Techno-Economic feasibility of Photovoltaic, Wind, Diesel and Hybrid Electrification Systems for Off-grid Rural Areas in Colombia, **Renewable Energy, 97 (2016) ,** pp. 293-305.

J28) Alireza H. Mamaghani**, Behzad Najafi,** Fabio Rinaldi, Andrea Casalegno, Long-term economic analysis and optimization of an HT-PEM fuel cell based micro combined heat and power plant**, Applied Thermal Engineering 99 (2016),** pp. 1201–1211.

J29) Mehdi Aminyavari, Alireza H. Mamaghani, Ali Shirazi, **Behzad Najafi**, Fabio Rinaldi, Exergetic, Economic, and Environmental Evaluations and Multi-objective Optimization of an Internal-Reforming SOFC-gas turbine Cycle Coupled with a Rankine Cycle, **Applied Thermal Engineering, 108 (2016),** pp. 833-846.

J30) **Behzad Najafi,** Alireza H. Mamaghani, Fabio Rinaldi, Andre Casalegno, Long-term performance analysis of an HT-PEM fuel cell based micro-CHP system: Operational strategies, **Applied Energy 147 (2015)**, pp. 582-592.

J31) **Behzad Najafi**, Stefano De Antonellis, Manuel Intini, Matteo Zago, Fabio Rinaldi, Andrea Casalegno, A tri-generation system based on polymer electrolyte fuel cell and desiccant wheel–Part A: Fuel cell system modelling and partial load analysis**, Energy Conversion and Management, 106 (2015),** pp. 1450-1459.

J32) **Behzad Najafi,** Alireza H. Mamaghani, Andrea Baricci, Andrea Casalegno, Fabio Rinaldi, Mathematical Modelling and Parametric Study on a 30 kWel High Temperature PEM Fuel Cell based Residential Micro Cogeneration Plant, **Int. J. of Hydrogen Energy 40 (2015),** pp. 1569–1583.

J33) Alireza H. Mamaghani, **Behzad Najafi**, Ali Shirazi, Fabio Rinaldi, 4E Analysis and Multi-Objective Optimization of an Integrated MCFC (Molten Carbonate Fuel Cell) and ORC (Organic Rankine Cycle) System, **Energy 82, 2015**, pp 650-663.

J34) **Behzad Najafi,** Alireza H. Mamaghani, Fabio Rinaldi, Andrea Casalegno, Fuel partialization and power/heat shifting strategies applied to a 30 kW el high temperature PEM fuel cell based residential micro cogeneration plant, **Int. J. of Hydrogen Energy 40 (41), 2015**, pp. 14224-14234.

J35) Alireza H. Mamaghani, **Behzad Najafi**, Ali Shirazi, Fabio Rinaldi, Exergetic, economic, and Environmental Evaluations and Multi-objective Optimization of a combined Molten Carbonate Fuel Cell – Gas Turbine System, **Applied Thermal Eng. 77 (2015),** pp. 1–11.

J36) **Behzad Najafi**, Pedro O. Vega, Manfredo Guilizzoni, Fabio Rinaldi, Sergio Arosio, Fluid Selection and Parametric Analysis on Condensation Temperature and Plant Height for a Thermogravimetric Heat Pump, **Applied Thermal Engineering 78 (2015),** pp. 51–61.

J37) **Behzad Najafi**, Ali Shirazi**,** Mehdi Aminyavari, Fabio Rinaldi, Robert A. Taylor, Exergetic, Economic and Environmental Analyses, and Multi-objective Optimization of an SOFC-Gas Turbine Hybrid Cycle Coupled to an MSF Desalination System, **Desalination, 334 (1), 2014,** pp. 46-59.

J38) Ali Shirazi, **Behzad Najafi,** Mehdi Aminyavari, Fabio Rinaldi, Robert A. Taylor, Thermal-Economic-Environmental Analysis and Multi-objective Optimization of an Ice Thermal Energy Storage System for Gas Turbine Cycle Inlet Air Cooling, **Energy 69 (2014)**, pp. 212–226.

J39) Mehdi Aminyavari, **Behzad Najafi**, Ali Shirazi, Fabio Rinaldi, Exergetic, Economic, Environmental (3E) Analyses and Multi-objective Optimization of a CO2/NH3 Cascade Refrigeration System, **Applied Thermal Eng. 65 (2014)**, pp. 42-50.

J40) Fabio Rinaldi, **Behzad Najafi**, Temperature measurement in WTE boilers using suction pyrometers**, Sensors, 13 (11), 2014,** pp. 15633-15655.

J41) Tommaso Selleri, **Behzad Najafi**, Fabio Rinaldi, Guido Colombo, Mathematical Modelling and Multi-objective optimization of Mini-channel Heat Exchanger, **ASME J. of Thermal Sciences and Eng. Applications, 5(3), 2013.**

J42) Ali Shirazi, Mehdi Aminyavari, **Behzad Najafi,** Fabio Rinaldi, Majid Razaghi, Thermal/economic/environmental analysis and multi-objective optimization of an internal-reforming solid oxide fuel cell/gas turbine hybrid system, **Int. J. of Hydrogen Energy, 37 (24), 2012**, pp. 19111–19124.

J43) Hamidreza Najafi**, Behzad Najafi**, "Multi-Objective Optimization of a Plate and Frame Heat Exchanger via Genetic Algorithm, **J. of Heat and Mass Transfer, Springer 46 (6),** 2011, pp 639-647.

J44) Hamidreza Najafi, **Behzad Najafi**, Pooya Hoseinpoori, Energy and Cost Optimization of a plate and Fin Heat Exchanger Using Genetic Algorithm, **J. of Applied Thermal Eng. 31(10), 2011**, pp. 1839–1847.

J45) **Behzad Najafi**, Hamidreza Najafi, Mahdi D. Idalik, CFD Investigation and Multi-Objective Optimization of an Engine Air Cooling System Using Genetic Algorithm, **J of Mech. Eng. Science, IMechE Part C, 225 No. 6, 2010,** pp. 1389-98.

Conference Papers

C1) Luca Cannava, Sara Perotti, **Behzad Najafi**, Fabio Rinaldi, and Emanule Mazzilli roadmap for improving warehouse environmental sustainability: the case of a conditioned logistics facility for medical devices, **Accepted for presentation in International Conference on Dynamics in Logistics – LDIC 2024, Bremen, Germany**

C2) Sara Perotti, Luca Cannava, **Behzad Najafi,** Fabio Rinaldi, Edoardo Gronda, Sustainable and energy-efficient industrial systems: modelling the environmental impact of logistics facilities, accepted for

presentation in **The 11th International Conference on Industrial Engineering and Applications (Europe) (ICIEA 2024-Europe).**

C3) Luca Cannava, Sara Perotti, **Behzad Najafi**, Fabio Rinaldi, Assessing the Impact of Smart Lighting Systems and On-Site Renewable Generation in a Distribution Warehouse: A Simulation-Based Approach, **5th International Conference on Harbor, Maritime and Multimodal Logistic Modeling & Simulation 2023, Athens (Greece)**

C4) Italo Compodonico Avendano, Farzad Dadras Javan, Amin Moazami, **Behzad Najafi**, "Predicting HVAC-Based Demand Flexibility In Grid- Interactive Efficient Buildings Utilizing Deep Neural Networks", http://doi.org/10.7148/2023-0148, **Proceedings-European Council for Modelling and Simulation, ECMS, 2023 [Recognized as the conference's best paper**]

C5) Farzad Dadars Javan, Italo Campodonico Avendano, **Behzad Najafi,** Amin Moazami, Fabio Rinaldi, "Modulating The HVAC Demand Of A Warehouse To Provide Load Flexibility For Charging Electric Trucks", http://doi.org/10.7148/2023-0255", Proceedings-European Council for Modelling and Simulation, ECMS, 2023

C6) Farzad Dadras Javan, Italo Campodonico Avendano, **Behzad Najafi**, Fabio Rinaldi, Michele Rossi "Estimating Morning Ramp-up Duration for the Cooling Season in a Smart Building Using Machine Learning: Determining Most Promising Features", **18th conference on sustainable development of energy, water and environmental systems, September 2023**

C7) Synne Krekling Lien, **Behzad Najafi**, Jayaprakash Rajasekharan, Advances in Machine-Learning Based Disaggregation of Building Heating Loads: A Review, Energy Informatics Academy Conference EI.A **2023**: **Energy Informatics** pp 179–201 [**Recognized as the conference's best paper**]

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Autorizzo il trattamento dei miei dati personali presenti nel cv ai sensi del Decreto Legislativo 30 giugno 2003, n. 196 "Codice in materia di protezione dei dati personali" e dell'art. 13 del GDPR (Regolamento UE 2016/679). Milano, 01/06/2021