

CURRICULUM VITAE

Personal Information

Najafi, Behzad

Gender Male | Date of Birth 21/11/1987 | Marital Status: Married

Nationality Iranian | Place of Birth Tehran(Iran)

✉ Behzad.najafi@polimi.it

📍 Via Paulucci di Calboli Fulcieri, 20162, Milano, Italy

Education and Training

- January 2013-February 2016 **PhD in Energy and Nuclear Science and Technology**
Politecnico di Milano, Milan, Italy
- PhD (Dottorato con Merito) - Thesis Title: Predictive Modelling and Adaptive Long-term Performance Optimization of HT-PEM Fuel Cell based Micro-CHP Systems, Advisors: Prof. Fabio Rinaldi, Prof. Andrea Casalegno
 - A collaboration with ICI Caldaie SpA in the context of MICROGEN30 Project funded by the Italian Ministry of Economic Development
- October 2010-December 2012 **Master of Science in Energy Engineering**
Politecnico di Milano, Milan, Italy
- GPA: 110/110 - Thesis Title: Performance Analysis of Residential Micro Cogeneration Systems based on Low Temperature and High Temperature PEM Fuel Cells, Advisors: Prof. Fabio Rinaldi, Prof. Andrea Casalegno
- 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
- April 2019 - Present 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 Researcher

Academic Qualifications

- October 2018 Italian National Scientific Habilitation (Qualification) for Associate Professorship (Abilitazione Scientifica Nazionale – Fascia: 2), 09/C2

Research Metrics

- Scopus, July 1st 2021 30 ISI Journal Publications, 1350 citations, h index: 18

Awards and Honours

October 2016 International Postdoctoral Fellowship, Politecnico di Milano
January 2013 Full Scholarship for PhD Program, Politecnico di Milano

Teaching Experience

As the main lecturer (titolare):

Fall 2020-2021, Fall 2019-2020 Energy and Environmental Technologies for Building Systems (8 CFU)
Fall 2018/2019, Fall 2017/2018 M.Sc. Program in Energy Engineering, Politecnico di Milano
Fall 2016/2017, Fall 2015/2016

Fall 2020/2021 Technical Environmental Systems (5 CFU)
Fall 2019/2020 M.Sc. Program in Sustainable Architecture and Landscape Design
Politecnico di Milano

As the teaching assistant:

Fall 2018/2019 Technical Environmental Systems
Fall 2017/2018 M.Sc. Program in Sustainable Architecture and Landscape Design,
Politecnico di Milano

Fall 2013/2014 Advanced Thermodynamics and Heat Transfer
Fall 2014/2015 M.Sc. Program in Energy Engineering, Politecnico di Milano

Thesis Supervision

- One PhD thesis (ongoing) as the main supervisor
- 20 M.Sc. theses as the main supervisor
- 9 M.Sc. theses as the co-supervisor
- ✓ Details of the supervised theses are provided in the research activities section

Research Interests

- Physical phenomena-inspired data-driven predictive modelling of the thermal behavior of indoor environments, HVAC systems, and the buildings connected to district heating systems aiming at real-time setpoint optimization.
- Physical and data-driven dynamic modelling of industrial boilers aiming at optimal sizing and optimal 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 (in the order of relevance)

- 2017-present** Physical and data-driven dynamic modelling of fire-tube boilers aiming at optimal sizing and the implementation of multi-setpoint management strategy considering the corresponding demand profiles
- ✓ **Partners and Collaborators:** ICI Caldaie SpA, University of Brescia, End-users: Caseificio Ghidetti, Bolton Manitoba Group
 - ✓ **Publications:** 2 published journal articles and 2 journal articles under review.
 - ✓ **Related Supervised PhD thesis:**
 - T1) Marco Tognoli (since Oct. 2018; ongoing) 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:**
 - T2) 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)
 - ✓ **Publications:** 1 published journal article and 1 journal article under review.
 - ✓ **Related Supervised M.Sc. theses:**
 - T3) Shayan Milani (April 2021) Machine Learning Based Heat Transfer Estimation of Evaporating and Condensing R134a Flow in Micro-Finned Tubes;
 - T4) Keivan Ardam (2020) Application of Machine Learning in Pressure Drop Estimation of Two-Phase Adiabatic and diabatic flows: A Dimensionless Approach;
 - T5) Andrej Hanusovsky (2018) – (As the Co-supervisor): Reproducible machine-learning physical-based models for pressure drop estimation in two phase flows;
 - T6) Alessandro Benetti (Expected July 2021), tentative title: Machine learning based estimation of flow regimes in two-phase adiabatic flows.
- 2011-2018** 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
- ✓ **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).

- ✓ **Publications:** 15 journal articles.
- ✓ **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:**
 - T7) Paolo Bonomi (2018): Machine learning based fault diagnosis and performance estimation of automotive PEM fuel cells through optimal EIS tests;
 - T8) 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;
 - T9) Gianluca Cimionò (as the co-supervisor, 2015) Modelling of innovative components in a fuel cell based micro-cogeneration plant (translated from the Italian title);
 - T10) 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).

2016-2019 Techno-economic configuration optimization and environmental assessment of hybrid renewable energy systems for rural electrification (Case studies: rural areas in Peru and Colombia).

- ✓ **Publications:** 2 journal articles.
- ✓ **Related Supervised M.Sc. thesis:** T11) Farzad Moghaddampour (2019) Feasibility analysis of renewable energy systems for rural electrification in different climatic zones in Peru.

2016-Present Physical phenomena-inspired data-driven predictive modelling of the thermal behaviour of indoor environments, HVAC systems, and the buildings connected to district heating systems (together with the corresponding generation and distribution sides) along with data-driven occupancy estimation/prediction; key objective: real-time setpoint optimization.
Machine-learning based estimation of buildings' characteristics and air-conditioning loads from the corresponding consumption profiles.

Partners and collaborators: SIRAM (Veolia SpA), Concordia University (Canada), Idiap Institute (Switzerland), Western Norway University of Applied Sciences, Edilclima S.r.l.

- ✓ **Related Publications:** 4 Journal articles.
- ✓ **Related Supervised PhD thesis:** Marco Tognoli (ongoing)
- ✓ **Related Supervised M.Sc. theses:**
 - T12) Farzad Dadras Javan (June 2021) Optimization of Machine Learning based Pipelines for Weather-Normalized Intervention Assessment and Ramp-Up Time Estimation in a Smart Building System;

- T13) Giulia Moret (April 2021): Determination of the Most Promising Feature Sets in Machine Learning based Pipelines for Predictive Thermal Behaviour Modelling of Indoor Spaces;
- T14) 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;
- T15) 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;
- T16) Luca di Narzo (2020): Machine learning based estimation of air-conditioning loads using smart meter data;
- T17) Monica Depalo (2020) Explainable machine learning based estimation of commercial buildings' characteristics by analysing temporal consumption profiles;
- T18) Debayan Paul (2020): Benchmarking the methodologies for solar irradiance estimation on vertical planes aiming at glazed building facade design;
- T19) Arun Shaju (2019): Machine learning based building characteristics and performance estimation through analysing consumption profiles;
- T20) Farshad Bolourchifard (2019) Application of Deep Learning in Thermal Load Forecasting and Data-driven Supply Optimization of a District Heating Network;
- T21) Ratomir Dimikj, Darko Micev (2019): Incremental Machine Learning based Load Prediction aiming at Performance Improvement on Day-Ahead Market;
- T22) Danish Ahmad Mir - Enoch Nuamah Appiah (2019) Development of optimal machine learning based pipelines for predicting the dynamic thermal behaviour of indoor environments;
- T23) Nicolas Fernando Marrugo Cardenas (2019): Deep Learning based Occupancy Prediction and HVAC behaviour Modelling for Improving Energy efficiency of Commercial Buildings;
- T24) Michela Silva (2018): Machine learning based consumption prediction and hourly optimization of the heating system for a hospital complex;
- T25) Manoj Manivannan (2017): ML based short-term prediction of air-conditioning loads through smart meter analytics.

Thesis Evaluation Committee Membership

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.: 2020/ 2021, 2019-2020 M.Sc. Program in Energy Engineering (unofficial appointment)
2018-2019

Review Services

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

Industrial Projects

2020 Cometel Engineering
✓ Scope: Finite element modelling of heat and moisture transfer in drying process of cement aiming at optimizing the drying cycles

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

2015 Tecno cryo SpA
✓ Scope: Simulation of LNG evaporation heat exchangers

Language Skills

Persian Native
English Fluent
Italian Fluent

Software Skills

- Proficiency in Python and the following modules: Numpy, Pandas, Matplotlib, Scipy, Sklearn, PySpark.
- Proficiency in MATLAB.
- Proficiency in SQL based Databases.
- OS: Linux and Unix shell.
- Proficiency in M.S. Office and LaTeX.

Publications

Book Chapter

Behzad Najafi, Sadaf Moaveninejad, Fabio 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) **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.
- J2) 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.
- J3) **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.
- J4) Giorgio Besagni, Marco Borgarello, Lidia Premoli Vilà, **Behzad Najafi**, 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.
- J5) **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.
- J6) **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.
- J7) 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.
- J8) 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.
- J9) 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.
- J10) 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.
- J11) 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.
- J12) 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.

- J13) 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.
- J14) 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.
- J15) **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.
- J16) **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.
- J17) **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.
- J18) 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.
- J19) **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.
- J20) 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.
- J21) **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.
- J22) **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.
- J23) 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.
- J24) 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.
- J25) Fabio Rinaldi, **Behzad Najafi**, Temperature measurement in WTE boilers using suction pyrometers, **Sensors**, **13** (11), 2014, pp. 15633-15655.

- J26) 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.
- J27) 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.
- J28) 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.
- J29) 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.
- J30) **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.

In-process Journal Articles:

- In-process-J1) Keivan Ardam, **Behzad Najafi**, Andrej Hanusovsky, 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, **under-review (1st review received) in Int. J. of Refrigeration**.
- In-process-J2) 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, **under-review in Energy**.
- In-process-J3) 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, **under-review in Heat and Mass Transfer**.

Conference Papers

- C1) Fabio Rinaldi, Farzad Moghaddampour, **Behzad Najafi**, Renzo Marchesi, Economic Feasibility Analysis and Optimization of Hybrid Renewable Energy Systems for Rural Electrification in Different Climatic Zones of Peru, **14th Conference on Sustainable Development of Energy, Water, and Environment Systems, Oct. 1st-6th 2019, Dubrovnik, Croatia**.
- C2) Mahsa Rafigh, Mohsen Mirzaeian, **Behzad Najafi**, Fabio Rinaldi, Renzo Marchesi, Multi-objective optimization of a solar humidification dehumidification desalination unit, **35th UIT Heat Transfer Conference (UIT2017), Jun. 26th–28th 2017, Ancona, Italy** (revised paper published in Journal of Physics: Conference Series 923 (1), 012038).
- C3) **Behzad Najafi**, Andrea Baricci, Andrea Casalegno, Fabio Rinaldi, Renzo Marchesi Long term performance optimization of a high temperature PEM fuel cell based cogeneration system, **6th European Fuel cell conference, Dec. 16th-18th 2015, Napoli, Italy**.
- C4) **Behzad Najafi**, Andrea Baricci, Andrea Casalegno, Fabio Rinaldi, Renzo Marchesi, Long term performance analysis of a high temperature PEM fuel cell based cogeneration system considering stack

degradation, **11th Fuel cell Modelling and Validation Conference (Modval11), Mar. 17th -19th 2014, Winterthur Switzerland.**

- C5) **Behzad Najafi**, Andrea Baricci, Andrea Casalegno, Fabio Rinaldi, Renzo Marchesi, Mathematical Modelling and Performance Analysis of a Residential Micro Cogeneration Plant based on a High Temperature PEM Fuel Cell Stack, **5th European Fuel cell conference, Dec. 11th -13th 2013, Rome, Italy.**
- C6) Luis Muhlen, **Behzad Najafi**, Fabio Rinaldi, Renzo Marchesi, Sensitivity analysis on the effect of key parameters on the performance of parabolic trough solar collectors. **31st UIT Heat Transfer Conference, Jun. 25th-27th, 2013 Como, Italy** (revised paper published in Journal of Physics: Conference Series 501 (1), 012032).
- C7) Hamidreza Najafi , **Behzad Najafi**, “Multi-Objective optimization of a fire-tube heat recovery steam generator”, **IEEE 7th annual Electrical Power and Energy , EPEC, Oct. 3rd-5th 2011, Winnipeg, MB, Canada**, pp. 1-6.
- C8) Hamidreza Najafi , **Behzad Najafi** , Sensitivity Analysis of a Hybrid Photovoltaic Thermal Solar Collector, Proceedings of **IEEE annual Electrical Power and Energy conference , EPEC Oct. 3rd-5th 2011, Winnipeg, MB, Canada**, pp. 62 – 67.
- C9) Hamidreza Najafi, Pooya Hoseinpoori, **Behzad Najafi** , Optimal Design of Gas Turbine-Solid Oxide Fuel Cell Hybrid Plant, , Proceedings of **IEEE annual electrical Power and Energy conference , EPEC Oct. 3rd-5th 2011, Winnipeg, MB, Canada**, pp. 29 – 34.

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