Silvia Ravelli Curriculum Vitae

EDUCATION

1993-1997 High school degree of Scientific studies, 60/60.

1998-2002 Master of Science in Engineering Degree, 110/110 *cum laude*, University of Bergamo, Italy, Faculty of Engineering. Degree class: Industrial Engineering. Thesis title: "Structure and analysis of intermediate chemical trade".

2003-2006: PhD in "Energy and Environmental Technologies", University of Bergamo, Italy, Faculty of Engineering. Dissertation title: "Waste-to-energy plant modelling: detailed analysis of the fluidized bed combustor".

ACADEMIC CAREER

- 2007: Fellowship as research assistant in the Department of Industrial Engineering - University of Bergamo.
- February 2008 - May 2017: Assistant Professor of Energy Systems in the Department of Engineering and Applied Sciences - University of Bergamo.
- Since June 2017: **Associate Professor** of Energy Systems in the same Department.

National Scientific Qualification:

- 2013: Associate Professor
- Since January 2020: Full Professor - 09/C1

TEACHING ACTIVITIES

Since 2003, she has been involved in teaching courses in the field of "Energy Systems and Turbomachinery" at the University of Bergamo – Faculty of Engineering.

- 2008-2010: "Energy conversion systems" in Management Engineering Course - First level degree.
- 2013-2018: "Energy systems" in Management Engineering Course - Second level degree.
- Since 2010: "Advanced energy systems" in Mechanical Engineering Course - Second Level Degree.
- 2018-2023: "Energy systems" in Mechanical Engineering Course – Second Level Degree.
- Since 2019: "Sustainable Energy" in Mechatronics and Smart Technology Engineering Course – Second Level Degree.

WORK EXPERIENCE

In 2006 she worked in Centro Sviluppo Materiali S.p.A., a R&D centre in Dalmine, Italy, within a project on "CFD modelling of industrial furnaces for thermal treatment of steel tubes".

RESEARCH ABROAD

In 2009 visiting scholar at the University of Texas at Austin, Department of Mechanical Engineering, within a project, led by Prof. D. G. Bogard, on cooling of the turbine section in gas turbine engines.

EXPERTISE

- Modelling and optimization of conventional and advanced power plants (co-production of electric and thermal power, district heating, integrated gasification combined cycle, Rankine and Combined Cycle) fed by fossil and alternative fuels, with integration of renewable generation, at full and part load.

  Codes: Thermoflow Inc. - Thermoflex, Thermoflow *ELINK*, Matlab

- CFD modelling using commercial and open-source codes:
  - Steady and Hybrid RANS-LES methods applied to film cooling of the turbine section in gas turbine engines;
  - numerical validation of aerodynamic and thermal performance of high-pressure turbines in gas turbine engines, with a focus on (showerhead) leading edge and (cutback) trailing edge film cooling;
  - combustion processes: methane combustion in flameless vs. conventional burners, refuse derived fuel combustion in bubbling fluidized bed furnaces.

  Solver: ANSYS FLUENT & CFX, STARCCM+; Grid generation: GAMBIT, Pointwise; Visualization: Tecplot, Ensight, ParaView.

- Basic knowledge of experimental measurements of film cooling in flat plate and turbine vane/blade cascade in a linear arrangement.

AWARDS and SCIENTIFIC RECOGNITIONS

- Since 2009, member of the American Society of Mechanical Engineers (ASME).
- From 2010 to 2020, she was awarded several million CPU hours on CINECA-SCAI supercomputers.
- 2014 **Best Paper Award** from the Heat Transfer Committee of the ASME-International Gas Turbine Institute - paper title "Application of Unsteady CFD Methods to Trailing Edge Cutback Film Cooling" by S. Ravelli and G. Barigozzi (https://doi.org/10.1115/1.4028238).
- 2024 **Best Paper Award** from the Coal, Biomass & Alternative Fuels Committee of the ASME -International Gas Turbine Institute - paper title "Thermodynamic Optimization of Load-Following Operation in a Decarbonized Combined Cycle Power Plant Under Net-Zero Scenarios" by S. Ravelli (https://doi.org/10.1115/1.4065920).
- Since June 2019, member of the ASME Gas Turbine Heat Transfer Committee (K-14).
- 2020 Reviewer of the Year – ASME Journal of Turbomachinery (https://www.asme.org/publications-submissions/journals/asme-journal-program-awards/awards-reviewers-of-the-year/2020-reviewers-of-the-year)
- Since April 2021, Editorial Board Member of *Energies* - Thermal Management Section (MDPI).
- Since June 2021, member of ASME Coal, Biomass, Hydrogen, and Alternative Fuels Committee.
- Since April 2022, Active member of the Class of Physical and Economic Sciences - Athenaeum of sciences, letters and arts of Bergamo.
- Since September 2023, Associate Editor of the ASME Journal of Turbomachinery - category "Computational Fluid Dynamics" (3-year appointment).

OTHER ACTIVITIES

- Reviewer for International Conferences (ASME Turbo Expo, IMECE, European Turbomachinery Conference) and for several International Journals by Elsevier and ASME (Applied Energy, Applied Thermal Engineering, International Journal of Thermal Sciences, International Journal of Heat and Mass Transfer, Journal of Turbomachinery, Fuel, Chemical Engineering Science, Renewable Energy, Energy & Fuel…)
- Reviewer for the Natural Sciences and Engineering Research Council of Canada (NSERC)
- Review Organizer, as Chair and Co-chair, for ASME Turbo Expo and European Turbomachinery Conference.
- Since 2018, Board Member of the PhD program in Engineering and Applied Sciences – University of Bergamo. Since March 2022, contact person for the doctoral curriculum in "Technology for Energy and Environment". Since July 2023, Vice-coordinator of that PhD program.
- Since 2018, MatER (Materials and Energy from refuse) Scientific Committee Member.
- Member of AIMSEA (Associazione Italiana delle Macchine e dei Sistemi per l'Energia e l'Ambiente).
- PhD thesis Reviewer and Member/President of the Examining Board - Doctoral Oral Defence – at the University of Florence (2019), University of Brescia (2021) and Politecnico di Torino (2024).
- Tutor of 1 STARS 2-year fellowship from September 2018 to September 2020.
- Since 2018, Member of the HPC committee-Department of Engineering and Applied Sciences, University of Bergamo.
- Responsible for course approvals and equivalencies within the ERASMUS program, in the field of energy systems and turbomachinery.
- President of the Examining Board – State exams – I and II session 2020 at the University of Bergamo.
- Since 2023, Member of the Access Committee - Mechanical Engineering - for the evaluation of international applications to the Master's Degree in "Mechatronics and Smart Technology Engineering" - renewed on Oct. 17, 2024.
- Since Oct. 3, 2024, member of the Research Council of the Department of Engineering and Applied Sciences and contact person for VQR.
- Since Oct. 1, 2025, Delegate for Internationalisation for the Department of Engineering and Applied Sciences.
- Co-responsible for the consulting contract signed with Tenaris Dalmine S.P.A. on "Optimization of compression and storage of green hydrogen in gaseous phase" – 2021.
- Responsible for the research contract signed with A2A S.p.A. on "Carbon Capture by pre- and oxy-combustion technologies: development of power section performance models" – 2025-2026.
- Vanguard co-chair for "Track 12: Film Cooling" at ASME Turbo Expo 2023 (26 final papers, 8 sessions).
- Vanguard chair for "Track 12: Film Cooling" at ASME Turbo Expo 2024 (52 final papers, 14 sessions).
- Vanguard chair for "Track 13: General Interest & Additive Manufacturing" at ASME Turbo Expo 2025 (18 final papers, 5 sessions)

List of publications

[1] **S. Ravelli**, A. Perdichizzi, G. Barigozzi, “Confronto fra tecnologie per la termovalorizzazione: forno a letto fluido e forno a griglia”, 60° Congresso Nazionale ATI, 13-15 settembre 2005, Roma.

[2] **S. Ravelli,** A. Perdichizzi, “Numerical modelling of a bubbling fluidized bed combustor”, Waste Management 2006, June 21-23, 2006, Malta, *published in WIT Transactions on Ecology and the Environment 92, pp. 469-478*.

[3] **S. Ravelli,** A. Perdichizzi, “Energy from RDF by means of fluidized bed combustion”, Venice 2006, Biomass and Waste to Energy Symposium, 29 November to 1 December 2006, Cini Foundation.

[4] G. Barigozzi, G. Franchini, A. Perdichizzi, **S. Ravelli**, “Area ratio effects on flat plate film cooling through shaped holes”, 62° Congresso Nazionale ATI, 11-14 settembre 2007, Università di Salerno.

[5] E. Malfa, U. Zanusso, L. Ballarino, M. Fantuzzi, **S. Ravelli**, A. Savioli, “Revamping of treatment furnace with Tenova Flexytech® TLX burners”, 7th High Temperature Air Combustion and Gasification International Symposium, January 13-16, 2008, Phuket, Thailand & XXXI Combustion Meeting, June 17-20, 2008, Torino, Italy.

[6] G. Barigozzi, A. Perdichizzi, **S. Ravelli**. “Analisi del campo di moto a valle di un ventilatore a flusso misto per il raffreddamento del sottocofano di trattori”, MIS-MAC 2008, 28 marzo 2008, Napoli.

[7] **S. Ravelli**, A. Perdichizzi, G. Barigozzi, “Description, application and numerical modelling of bubbling fluidized bed combustion in waste-to-energy plants”, *Progress in Energy and Combustion Science* 2008; 34:224–253.

[8] G. Barigozzi, G. Franchini, A. Perdichizzi, **S. Ravelli**, “Contouring effects on the adiabatic effectiveness distribution over a film cooled endwall cascade”, 8th European Turbomachinery Conference, March 23-27, 2009, Graz, Austria.

[9] G. Barigozzi, G. Franchini, A. Perdichizzi and **S. Ravelli**, “Experimental Analysis of the Combining Effects of Endwall Contouring and Film Cooling through Shaped Holes”, 9th International Symposium on Experimental and Computational Aerothermodynamics of Internal Flows (ISAIF9), September 8-11, 2009, Gyeongju, Korea.

[10] G. Barigozzi, G. Franchini, A. Perdichizzi, **S. Ravelli**, “Effects of Trenched Holes on Film Cooling of A Contoured Endwall Nozzle Vane”, ASME Paper GT2010-22117, *published in J. Turbomach* 2012, 134/041009-1:10.

[11] L. D. Dobrowolski, D. G. Bogard, **S. Ravelli**, “Accuracy of Conventional Adiabatic Effectiveness and Heat Trasfer Augmentation Factors in Predicting Heat Flux into a Turbine Blade Leading Edge”, ASME Paper GT2010-23438.

[12] **S. Ravelli**, L. D. Dobrowolski, D. G. Bogard, “Evaluating the Effects of Internal Impingement Cooling on a Film Cooled Turbine Blade Leading Edge”, ASME paper GT2010-23002.

[13] G. Barigozzi, G. Franchini, A. Perdichizzi, **S. Ravelli**, “Film cooling of a contoured endwall nozzle vane through fan-shaped holes”, *Int. J. of Heat and Fluid Flow* 2010; 31:576–585.

[14] G. Barigozzi, **S. Ravelli**, M. Miranda, “Aerodynamic Investigation of Trailing Edge Film Cooling in a Linear Gas Turbine Nozzle Vane Cascade”, 65° Congresso Nazionale ATI, 13-17 settembre 2010, Domus de Maria (CA).

[15] G. Barigozzi, A. Perdichizzi, **S. Ravelli**, “Wet and dry cooling systems optimization applied to a modern waste-to-energy cogeneration heat and power plant”, *Applied Energy* 2011, 88:1366-76.

[16] G. Barigozzi, **S. Ravelli**, Effects of trailing edge film cooling on the aerodynamic performance of a nozzle vane cascade, 9th European Turbomachinery Conference, March 21-25, 2011, Istanbul, Turkey.

[17] G. Barigozzi, A. Perdichizzi, **S. Ravelli**, “Pressure Side and Cutback Trailing Edge Film Cooling in a Linear Nozzle Vane Cascade at Different Mach Numbers”, ASME Paper GT2011-45898, *published in J. Turbomach* 2012, 134/051037-1:10.

[18] S. Mathew, **S. Ravelli**, D. G. Bogard, “Evaluation of CFD predictions using thermal field measurements on a simulated film cooled turbine blade leading edge”, ASME paper GT2011-46619, *published in J. Turbomach* 2013, 135/ 011021-1:10.

[19] G. Barigozzi, **S. Ravelli**, "The Effect of Turbulence Models on CFD Predictions of the Flowfield in a Turbine Nozzle Vane Cascade", 10th International Symposium on Experimental and Computational Aerothermodynamics of Internal Flows (ISAIF10), July 4-7, 2011, Brussels, Belgium.

[20] G. Barigozzi, G. Bonetti, G. Franchini, A. Perdichizzi and **S. Ravelli, "**Thermal performance prediction of a solar hybrid gas turbine", *Solar Energy* 2012, 86:2116–27.

[21] G. Barigozzi, **S. Ravelli**, M. Maritano, R. Abram, "Computational predictions of aero-thermal performance of a turbine filleted blade cascade with endwall film cooling", ASME paper GT2012-69049.

[22] G. Barigozzi, G. Bonetti, G. Franchini, A. Perdichizzi and **S. Ravelli,** "Solar hybrid combined cycle performance prediction: influence of GT model and spool arrangement", ASME Paper GT2012-68881, *published in J. of Engineering for Gas Turbines and Power 2012,* 134/121701-1:11.

[23] G. Barigozzi, M. Miranda, **S. Ravelli**, "Preliminary steady-state heat transfer results on the trailing edge cutback of a high pressure gas turbine vane", 67° Congresso Nazionale ATI, 11-14 settembre 2012, Trieste.

[24] **S. Ravelli**, M. Miranda, G. Barigozzi, "Steady CFD simulations of trailing edge film cooling in a linear nozzle vane cascade", 10th European Turbomachinery Conference, April 15-19, 2013, Lappeenranta, Finland.

[25] G. Barigozzi, **S. Ravelli**, A. Armellini, C. Mucignat, L. Casarsa, "Experimental Investigation of unsteadiness associated with film cooling flow ejection from the vane pressure side", 10th European Turbomachinery Conference, April 15-19, 2013, Lappeenranta, Finland.

[26] **S. Ravelli**, G. Barigozzi, "Evaluation of RANS Predictions on a Linear Nozzle Vane Cascade With Trailing Edge Cutback Film Cooling", ASME Paper GT2013-94694.

[27] G. Franchini, A. Perdichizzi, G. Barigozzi, **S. Ravelli**, "Simulation of Solarized Combined Cycles: Comparison Between Hybrid GT and ISCC Plants", ASME Paper GT2013-95483, *published in J. of Engineering for Gas Turbines and Power* 2014, 136/ 031701-1:10.

[28] G. Barigozzi, **S. Ravelli**, A. Armellini, C. Mucignat, L. Casarsa, "Effects of injection conditions and Mach number on unsteadiness arising within coolant jets over a pressure side vane surface", *I. J. of Heat and Mass Transfer 2013,* 67:1220–1230.

[29] G. Barigozzi, G. Franchini, A. Perdichizzi, S. Ravelli, "Performance prediction of CSP conventional steam plants and hybrid combined cycles", International Conference on Renewable Energy and its Future in the Arab World - ICREFAW Conference 2013, 22-24 April, Amman Jordan.

[30] G. Franchini, A. Perdichizzi, **S. Ravelli**, G. Barigozzi, "A comparative study between parabolic trough and solar tower technologies in Solar Rankine Cycle and Integrated Solar Combined Cycle plants", *Solar Energy 2013, 98:302–314.*

[31] **S. Ravelli**, G. Barigozzi, R. Ponzini, "Cooling of the turbine section in gas turbine engines: combined experimental and numerical modeling using HPC infrastructure", International CAE Conference 2013, October 21-22, 2013, Pacengo del Garda, Verona, Italy.

[32] A. Perdichizzi, G. Barigozzi, G. Franchini, **S. Ravelli**, "Simulation of Integrated Solar Combined Cycle coupled with Cooling Energy Production", Saudi Arabia Conference on Smart Grids and Green Energy (SASG 2013), November 24-27, 2013, Jeddah, Saudi Arabia.

[33] G. Barigozzi, A. Perdichizzi, **S. Ravelli**, "Performance prediction and optimization of a waste-to-energy cogeneration plant with combined wet and dry cooling system", *Applied Energy* 2014, 115:65-74.

[34] **S. Ravelli**, G. Barigozzi, "Adiabatic and conjugate simulations on the flow field in a gas turbine vane with pressure side film cooling and trailing edge cutback", *Proc IMechE Part A: J Power and Energy 2014*, 228 no. 6 657-673.

[35] **S. Ravelli**, G. Barigozzi, "Application of unsteady CFD methods to trailing edge cutback film cooling", ASME Paper GT2014-25435, *published in J. Turbomach* 2014, 136/121006-1:11.

[36] **S. Ravelli,** G. Barigozzi, F. Pasqua, R. Pieri, R. Ponzini, "Numerical and experimental study for the prediction of the steady, three dimensional flow in a turbine nozzle vane cascade using OpenFoam", International CAE Conference 2014, October 27-28, 2014, Pacengo del Garda, Verona, Italy.

[37] A. Perdichizzi, G. Barigozzi, G. Franchini, **S. Ravelli**, "Peak shaving strategy through a solar combined cooling and power system in remote hot climate areas", *Applied Energy* 2015, 143:154-163.

[38] **S. Ravelli**, G. Barigozzi, “Modelling the Influence of Vortex Shedding on Trailing Edge Cutback Film Cooling at Different Blowing Ratios”, 11th European Turbomachinery Conference, March 23-27, 2015, Madrid, Spain.

[39] G. Barigozzi, P. Epis, A. Perdichizzi, **S. Ravelli**, “Aero-thermal Investigation of End Wall and Showerhead Cooling in a Nozzle Vane Cascade”, 11th European Turbomachinery Conference, March 23-27, 2015, Madrid, Spain.

[40] A. Perdichizzi, G. Barigozzi, G. Franchini , **S. Ravelli**, “Performance Prediction of a CSP Plant Integrated with Cooling Production”, 7th International Conference on Applied Energy – ICAE2015, March 28 - 31, 2015, Abu Dhabi, United Arab Emirates; *published in Energy Procedia* 2015, 75: 436-443.

[41] G. Franchini, A. Perdichizzi, G. Barigozzi, S. **Ravelli**, “Simulation and Performance Assessment of Load-Following CSP Plants”, 3rd Southern African Solar Energy Conference - SASEC2015, May 11-13, 2015, Skukuza, South Africa.

[42] G. Barigozzi, **S. Ravelli**, “Combined Experimental and Numerical Study of Showerhead Film Cooling in a Linear Nozzle Vane Cascade”, ASME Paper GT2015-42397.

[43] **S. Ravelli,** G. Barigozzi, “Assessment of SAS and DDES predictive capability of trailing edge cutback coolant ejection”, 12th International Symposium on Experimental and Computational Aerothermodynamics of Internal Flows (ISAIF12), July 13-16, 2015, Lerici, Italy.

[44] **S. Ravelli**, G. Barigozzi, “Comparison of RANS and DES modeling against measurements of leading edge film cooling on a first stage vane”, ASME Paper GT2016-57567, *published in J. Turbomach* 2017, 139(5)/051005-1:12.

[45] G. Franchini, A. Perdichizzi, **S. Ravelli**, “Performance prediction of solarized CC power plants operating in a load-following strategy”, Power-Gen Africa 2016, July 19-21, 2016, Johannesburg, South Africa.

[46] **S. Ravelli**, G. Franchini, A. Perdichizzi, S. Rinaldi, V.E. Valcarenghi, “Modeling of Direct Steam Generation in Concentrating Solar Power Plants”, 71° Congresso Nazionale ATI, 14-16 settembre 2016, Torino*, published in Energy Procedia* 2016, 101:464-471.

[47] H.Sumayli, A. Al Zahrani, A. Bin Dayel, A. Perdichizzi, G. Franchini, **S. Ravelli**, “Comparative Analysis of Different CSP Plant Configurations in Saudi Arabia”, 2016 Saudi Arabia Smart Grid (SASG 2016), December 6-8, 2016, Jeddah, Saudi Arabia.

[48] **S. Ravelli**, G. Barigozzi, E. Casartelli, L. Mangani, “Assessment of transition modeling and compressibility effects in a linear cascade of turbine nozzle guide vanes”, *Journal of Fluids Engineering* 2017, 139: 051104-1:13.

[49] G. Barigozzi, **S. Ravelli**, A. Armellini, L. Casarsa and L. Furlani, Flow field inside a leading edge cooling channel with turbulence promoters in rotating conditions, Proc IMechE Part A: J Power and Energy 2017, 231(4)/274-289.

[50] G. Barigozzi, S. Mosconi, A. Perdichizzi, **S. Ravelli**, “The effect of hot streaks on a high pressure turbine vane cascade with showerhead film cooling”, 12th European Turbomachinery Conference, April 3-7, 2017, Stockholm, Sweden. *Published in Int. J. Turbomach. Propuls. Power 2017, 2(3), 15; doi:10.3390/ijtpp2030015.*

[51] G. Barigozzi, **S. Ravelli**, H. Abdeh, A. Perdichizzi, M. Henze, J. Krueckels, “Heat transfer analysis over a film cooled platform of a vane cascade with a non-uniform inlet flow”, ASME Paper GT2017-64266, pp. V05AT13A005.

[52] **S. Ravelli**, G. Franchini, A. Perdichizzi, “Comparison of different CSP technologies for combined power and cooling production”, *Renewable Energy* 2018, 121:712-721.

[53] **S. Ravelli**, G. Barigozzi, “Stress-Blended Eddy Simulation of Coherent Unsteadiness in Pressure Side Film Cooling Applied to a First Stage Turbine Vane”, *Journal of Heat Transfer* 2018, 140: 092201-1:14.

[54] **S. Ravelli**, G. Barigozzi, “Dynamics of coherent structures and random turbulence in pressure side film cooling on a first stage turbine vane”, ASME paper GT2018-75035, *published in J. Turbomach 2019, 141(1):011003-1:11.*

[55] **S. Ravelli,** A. Perdichizzi, “Performance assessment of an integrated gasification combined cycle under flexible operation”, ASME paper GT2018-75198.

[56] L. Ravasio, **S. Ravelli**, M. Mustafa, “Thermal Efficiency of On-site, Small-scale Hydrogen Production Technologies using Liquid Hydrocarbon Fuels in Comparison to Electrolysis: a Case Study in Norway”, 73° Congresso Nazionale ATI, 12-14 settembre 2018, Università di Pisa**,** *published in Energy Procedia* 2018, 148:1002-1009.

[57] **S. Ravelli**, G. Barigozzi, “Numerical evaluation of heat/mass transfer analogy for leading edge showerhead film cooling on a first-stage vane”, *International Journal of Heat and Mass Transfer 2019,* 129:842–854.

[58] S. Rouina, **S. Ravelli**, G. Barigozzi, “Combined Experimental and CFD Investigation of Flat Plate Film Cooling through Fan Shaped Holes”, 13th European Turbomachinery Conference, April 8-12, 2019, Lausanne, Switzerland. *Published in Int. J. Turbomach. Propuls. Power 2019, 4(2), 7; https://doi.org/10.3390/ijtpp4020007*

[59] **S. Ravelli**, L. Casarsa, G. Barigozzi, “Numerical evaluation of showerhead film cooling aerothermal performance on a first-stage vane”, *International Journal of Thermal Sciences* 2019, 141:171–186.

[60] H. Abdeh, G. Barigozzi, **S. Ravelli**, S. Rouina, “A Parametric Investigation of Vane Showerhead Film Cooling by PSP Technique”, ASME Paper GT2019-90019, *published in J. Turbomach 2020, 142: 031007-1:9.*

[61] S. Rouina, **S. Ravelli**, G. Barigozzi, “An experimental study of flat plate film cooling with cylindrical holes by using PIV, HWA and PSP techniques”, 74° Congresso Nazionale ATI, 11-13 settembre 2019, Modena, *published in AIP Conference Proceedings 2191, 020132 (2019); https://doi.org/10.1063/1.5138865.*

[62] A. Olivieri, **S. Ravelli**, “Cogasification of Coal and Biomass in an Integrated Gasification Combined Cycle Power Plant: Effects on Thermodynamic Performance and Gas Composition”, *J. Energy Eng.* 2020, 146(6): 04020071-1:18.

[63] **S. Ravelli**, H. Abdeh, G. Barigozzi, “Numerical Assessment of Density Ratio and Mainstream Turbulence Effects on Leading Edge Film Cooling: Heat and Mass Transfer Methods”, ASME paper GT2020-14009, *published in J. Turbomach 2021, 143: 041002-1:12*.

[64] M. Bruzzone, **S. Ravelli,** “Performance evaluation of a supercritical circulating fluidized bed boiler for power generation under flexible operation”, *Proc IMechE Part A: J Power and Energy* 2021, 0(0) 1–19.

[65] H. Abdeh, G. Barigozzi, **S. Ravelli**, S. Rouina, “Experimental investigation of the influence of density ratio and vane exit Mach number on platform cooling”, 14th European Turbomachinery Conference, April 12-16, 2021, Gdansk, Poland.

[66] **S. Ravelli**, “Part-load Operation of Gas Turbines Induced by Co-gasification of Coal and Biomass in an Integrated Gasification Combined Cycle Power Plant”, ASME paper GT2021-59830.

[67] V. Bonasio, **S. Ravelli**, “Performance Analysis of an Ammonia-Fueled Micro Gas Turbine”, *Energies* 2022; 15(11):3874. https://doi.org/10.3390/en15113874.

[68] **S. Ravelli**, “Thermodynamic Assessment of Exhaust Gas Recirculation in High-Volume Hydrogen Gas Turbines in Combined Cycle Mode”, ASME paper GT2022-83250, *published in J. Eng. Gas Turbines Power 2022, 144(11): 111012-1:13.*

[69] G. Brumana, G. Franchini, E. Ghirardi, **S. Ravelli**, “Optimization of Solar District Heating & Cooling Systems”, 77° Congresso Nazionale ATI, 12-14 settembre 2022, Bari, *published in* J. Phys.: Conf. Ser. *2385 012113, 10.1088/1742-6596/2385/1/012113.*

[70] P. Bartocci, A. Abad, A. Cabello, M. de Las Obras Loscertales, A. Bischi, **S. Ravelli**, F. Fantozzi, “Technical Evaluation of a Chemical Looping Combustor fed with Biofuels and its Integration with a Gas Turbine”, 6th International Conference on Chemical Looping, September 19-22, 2022, Zaragoza, Spain.

[71] L. Colleoni L, A. Sindoni, **S. Ravelli**, “Comprehensive Thermodynamic Evaluation of the Natural Gas-Fired Allam Cycle at Full Load”, *Energies* 2023, 16(6):2597. https://doi.org/10.3390/en16062597.

[72] G. Brumana, E. Ghirardi, G. Franchini, **S. Ravelli**, “Remote community energy Mix Optimization in the Arabian Peninsula”, 5th International Conference and Exhibition for Science 2023 (ICES2023), February 6 - 8, 2023, Riyadh, Saudi Arabia.

[73] **S. Ravelli**, “Reducing the Energy Penalty of Retrofit Decarbonization in Combined Cycle Power Plants”, ASME paper GT2023-103511, *published in J. Eng. Gas Turbines Power 2023, 145: 121003-1:11.*

[74] M. Fatiguso, A. R. Valenti, **S. Ravelli**, “Comparative energy performance analysis of micro gas turbine and internal combustion engine in a cogeneration plant based on biomass gasification”, *Journal of Cleaner Production* 2024, 434, 139782.

[75] G. Barigozzi, G. Brumana, G. Franchini, E. Ghirardi, **S. Ravelli**, “Techno-economic assessment of green hydrogen production for steady supply to industrial users”, *International Journal of Hydrogen Energy* 2024, 59, 125-135.

[76] G. Brumana, E. Ghirardi, G. Franchini, **S. Ravelli,** “Renewable-Based Energy Mix Optimization for Weak Interconnected Communities”, 9th International Conference on Environment and Renewable Energy, February 24-26, 2023, *published in Environment and Renewable Energy, ICERE 2023, Springer Proceedings in Earth and Environmental Sciences, Singapore, 2024, https://doi.org/10.1007/978-981-97-0056-1_6.*

[77] **S. Ravelli**, “Thermodynamic optimization of load-following operation in a decarbonized combined cycle power plant under net-zero scenarios”, ASME paper GT2024-127796, *published in J. Eng. Gas Turbines Power 2024, 146: 101020-1:14.*

[78] E. Savoldelli, **S. Ravelli**, “Evaluating the Impact of CO_2 Capture on the Operation of Combined Cycles with Different Configurations”, Energies 2024, 17(14):3501. https://doi.org/10.3390/en17143501.

[79] **S. Ravelli**, “The Role of Part-Load Control Strategies in Optimizing the Efficiency of a Decarbonized Combined Cycle Power Plant in Load-Following Mode”, ASME paper GT2025-152904, *accepted for publication in J. Eng. Gas Turbines Power.*

[80] F. D’Ambrosio F, L. Colleoni, **S. Ravelli**, “Off-Design Performance Modeling of the Natural Gas-Fired Allam Cycle”, Energies 2025, 18(17):4771. https://doi.org/10.3390/en18174771.

Editorial paper

[81] **S. Ravelli,** “District Heating and Cooling towards Net Zero”, *Energies* 2022; 15:6033. https://doi.org/10.3390/en15166033.

Presentations at conferences, workshops & training seminars

[82] **S. Ravelli**, G. Barigozzi, F. Pasqua, R. Pieri, R. Ponzini, “Predictions of the steady, 3D flow in a turbine nozzle vane cascade using OpenFOAM: a numerical and experimental comparison”, OpenFOAM User Conference 2014, October 7-9, 2014, Berlin, Germany.

[83] **S. Ravelli**, G. Barigozzi, ‘‘A combined experimental and numerical workflow for film cooling investigation in a high pressure turbine”, WS1: “New advances in gas turbine design”, Conference on Modelling Fluid Flow (CMFF’15), September 1-4, 2015, Budapest, Hungary.

[84] **S. Ravelli**, **“**Hybrid RANS/LES modelling of film cooling in high-pressure turbine vanes”, HPC Methods for Engineering Applications, June 18-20, 2018, CINECA, MILANO Office.

[85] **S. Ravelli**, “Performance Analysis of an Ammonia-Fueled Micro Gas Turbine”, 3rd Global Congress on CLIMATE CHANGE, September 13-14, 2023, Barcelona, Spain - Invited Speaker, Virtual Session.

[86] **S. Ravelli**, “Produzione di energia attraverso l’utilizzo dei rifiuti”, Green Jobs 2023-2024: Gestire i rifiuti nell’economia circolare, Marzo 11-13, 2024, online training seminar.

Public engagement

[87] **S. Ravelli**, “Transizione energetica: opportunità, incognite e contraddizioni sulla strada verso la sostenibilità”, November 3, 2021, online, Ateneo di Scienze, Lettere e Arti di Bergamo, *pubblicato in* ATTI DELL’ATENEO DI SCIENZE, LETTERE ED ARTI DI BERGAMO, Volume LXXXIV, © Sestante Edizioni, 2022, ISBN – 978-88-6642-3935.

[88] **S. Ravelli**, “Aggiornamento sulla situazione del mercato energetico italiano”, May 25, 2022, online, Ateneo di Scienze, Lettere e Arti di Bergamo.

[89] **S. Ravelli**, “Il contributo dell’energia nucleare alla decarbonizzazione”, September 20, 2023, Ateneo di Scienze, Lettere e Arti di Bergamo.

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