EUROPEAN CURRICULUM VITAE FORMAT

PERSONAL DATA

Name	EMANUELE MARTELLI
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WORK EXPERIENCE

Current position	from 7-6-2018 to today
• Name and address of employer	Politecnico di Milano
• Type of business or sector	University
• Occupation or position held	Associate Professor (tenured/permanent position)
• Main activities and responsibilities	Research and Teaching
• Dates	from 23-12-2011 to 6/5/2018
• Name and address of employer	Politecnico di Milano
• Type of business or sector	University
• Occupation or position held	Assistant Professor (tenured/permanent position)
• Main activities and responsibilities	Research and Teaching
• Dates	from 1-09-2011 to 22-12-2011
• Name and address of employer	Politecnico di Milano
• Type of business or sector	University
• Occupation or position held	Adjunct Professor (”Professore a Contratto”)
• Main activities and responsibilities	Research and Teaching
• Dates	from 15-01-2010 to 22-12-2011
• Name and address of employer	Politecnico di Milano
• Type of business or sector	University
• Occupation or position held	Post Doc (”Assegnista di Ricerca”)
• Main activities and responsibilities	Research and Teaching

EDUCATION AND TRAINING

• Dates	from 1-1-2007 to 22-02-2010
• Name and type of organisation providing education and training	Politecnico di Milano, PhD in Energy (Dottorato di ricerca in Energetica) Thesis in collaboration with Princeton University
Principal subjects/occupational skills covered	PhD thesis title: Numerical Optimization of Heat Recovery Steam Cycles for Highly Integrated Energy Systems.
• Title of qualification awarded	PhD in Energy Engineering

Level in national or international classification	Full Marks with Honors (Voto: Con Lode)
• Dates	1st February 2007 to 31st August 2007
• Name and type of organisation providing education and training	Princeton University, NJ, USA Department of Mechanical and Aerospace Engineering (MAE)
• Principal subjects/occupational skills covered	Research Activity in the field of Energy and Chemical Systems with low CO_2 emissions. Advisor: Prof. Robert Socolow, Tutor: Dr. T. Kreutz
• Title of qualification awarded	Visiting Student Research Collaborator
• Dates	October-2004 to December- 2006
• Name and type of organisation providing education and training	Politecnico di Milano
• Principal subjects/occupational skills covered	Master Degree in Mechanical Engineering (21-12-2006)
• Title of qualification awarded	Engineer
• Level in national or international classification	110/110 with Honors
Dates	September-2001 to October 2004
• Name and type of organisation providing education and training	Politecnico di Milano
• Principal subjects/occupational skills covered	Bachelor Degree in Mechanical Engineer (5-10-2004)
• Title of qualification awarded	Engineer
• Level in national or international classification	110/110 with Honors

PERSONAL SKILLS AND COMPETENCES .

Mother tongue:	Italian
OTHER LANGUAGE(S)	
	English
• Reading	good
• Writing	good
• Speaking and Understanding	good

SOCIAL SKILLS AND COMPETENCES.

Research collaborations with the following groups:

- Princeton University, Princeton Environmental Institute and Mechanical & Aerospace Department – Princeton, NJ, USA. T
- EPFL, École Polytechnique Fédérale de Lausanne, Laboratoire d'Énergétique Industrielle, Lausanne, Switzerland.
- ECN, Energy Research Center of the Netherlands, Petten, Netherlands. The collaboration activity started in 2010 with a joint project involving Princeton university, ECN and Politecnico di Milano. Two international papers were published on the activities.
- NTNU, Norwegian University of Science and Technology, Trondheim, Norway. The collaboration is focused on the optimization of heat recovery steam cycles. Two international papers on top journals (Energy and Applied Energy) were published
- University of Waterloo, Canada. The collaboration activity started in 2014 by exchanging master students and is focused on the analysis of energy systems for the extraction of bitumen from tar sands. One paper is under preparation.

- Politecnico di Torino, Dipartimento di Energetica, Italy. The collaboration activity started in 2011 within a US DOE (NETL) project involving Princeton university, Politecnico di Torino and Politecnico di Milano. The topic is the development and analysis of Integrated Gasification Fuel Cell (IGFC) plants with CCS. Four international papers were published on the activities.
- TU Delft, Department of Process Engineering. The collaboration started in 2014 by exchanging master students and is focused on the analysis of Supercritical Water gasification processes.
- ETH Zurich, Separation Process laboratory, Prof. Mazzotti. The collaboration started in 2015 and is focused on the development of ad hoc algorithms for the optimization of CO2 separation/capture processes.
- Carnegie Mellon University, Pittsburgh, prof. I. Grossmann. The collaboration aims at the development of a novel decomposition approach for the optimization of nonconvex MINLP problems arising in the synthesis of heat exchanger networks and power plant design problems.

Involved in scientific projects for the following companies and research institutes:
- Eni, Centro Ricerca, (Italian Oil Company), Italy.
- Enel, Centro Ricerca Pisa (Enel is the major Italian electric utility), Italy.
- BP, British Petroleum, BP alternative energy, UK.
- A2A, (A2A is the major Italian multi-utility), Italy.
- Foster Wheeler Italiana for IEA (International Energy Agency) GHG R&D Program (UK) and EPRI (Electric power research institute, US)
- CCP, CO2 capture project
- General Electric.
- LEAP (Laboratorio Energia Ambiente Piacenza), a consortium participated by Politecnico di Milano.

VISITING PERIODS

- ETH, Zurich, summer 2016
- EPFL, École Polytechnique Fédérale de Lausanne, summer 2014
- Princeton University, March 2008 and March 2009 as Research collaborator
- Princeton University, from March to August 2007 as Visiting Student Research Collaborator for joint research collaborations
- ECN, Energy Research Centers of the Netherlands, 2 weeks August 2009 for joint research collaborations

Invited talks:
- March 2017, semi-plenary lecture, final EU COST Conference "Mathematical Optimization in the decision support systems for Efficient and Robust Energy Networks", Modena, Italy.
- August 2016, ETH, Control Laboratory IFA, Zurich
- August 2016, EMPA, Zurich
- June 2016, ETH, Mech. and process dept., SPL laborary, Zurich
- December 2014, NAFEMS Optimization Working Group, UK
- September 2014, Alstom (R&D), Baden
- September 2014, ETH, Mech. and process dept., SPL, Zurich
- September 2014, EPFL, Mech. and process dept, IPESE group, Lausanne
- January 2012, NTNU, Norwegian University of Science and Technology, Trondheim

ORGANISATIONAL SKILLS AND COMPETENCES

- Since 2011, Advisor of 5 PhD students
- Since 2011, Advisor of more than 15 Master students
- PI of research projects funded by international institutes and companies (US DOE, Princeton University, Amec FW).
- Principal Investigator of the regional project "Efficity" (granted by Regione Emilia Romagna)

- Co-Principal Investigator of the regional project “Social Energy” (granted by Regione Lombardia)

TECHNICAL SKILLS AND COMPETENCES.

Background:

- Solid background in energy, process and mechanical engineering.
- Expert of numerical optimization methods and algorithms (Operations Research)

Main Research Activities:

1) Process Simulation and Optimization techniques and algorithms (Process Synthesis, process integration, heat integration and heat exchanger networks synthesis)
2) Development, modelling, and optimization of advanced power plants (IGCCs, oxy-combustion, renewable, hybrid fossil-renewable systems, etc)
3) Development, Modelling, and optimization of novel waste heat recovery technologies (ORCs, unconventional heat pumps, CHP cycles, etc)
4) Development, modelling and optimization of CO2 capture processes
5) Optimization of smart energy networks (networks of combined heat and power systems, heat distribution networks, smart energy systems, etc).
6) Development of numerical optimization algorithms

TEACHING ASSIGNMENTS

- From A.Y. 2016-2017, professor (fully responsible) of the course “Low Carbon Technologies” (5 CFU) for the Master level degree in Energy Engineering. The course is taught in English. Starting in the spring semester.
- Since 2011, professor (fully responsible) of the course “Energy Systems LM (7 CFU: 42 hours of theory lessons, 33 of exercise lessons and laboratory)” for the Master level degree in Mechanical Engineering. Since 2014 the course has been taught in English.
- From 2014 to 2016, professor (fully responsible) of the course “Energy Systems (7 CFU: 42 hours of theory lessons, 33 of exercise lessons and laboratory)” for the Master level degree in Energy Engineering (EEESW program) at Politecnico di Milano. The course was taught in English.
- From 2012-2015, lecturer of the “gasification” module (14 hours) of the course “Biofuels and bioenergy” for the Master level degree in Energy Engineering at Politecnico di Milano. The course is taught in English.
- 2015, Lecturer of the “Energy Work Group” for the master level course “Global Changes and Sustainability” for the students of the “Alta Scuola Politecnica” (ASP)
- Since 2008 till 2011, teaching assistant of several courses for both master and bachelor programs: “Sistemi Energetici LM” (Energy Systems), “Macchine” (“Fluid Machines”)
- Academic years 2008/2009 and 2009/2010, 2011/2012, 2012/2013, 2013/2014 Tutor for the master level course “Global Changes and Sustainability” for the students of the “Alta Scuola Politecnica” (ASP)

LICENSES

Driving licence
Fishing licence

ADDITIONAL INFORMATIONS

- Average mark during Bachelor and Master degree 29.9/30 (top < 0.1% students);
- Co-inventor of two international patents on CO2 capture systems
- Winner of 6 Awards for the best academic career, Master Thesis and PhD Thesis
- Interviewer for the Princeton University Alumni Schools Committee of applicants from Italy

Full list of publications
Journal publications are reported in *italic*.

A1. Capra, F., Gazzani, M., Joss, L., Mazzotti, M., Martelli, E., 2018. MO-MCS, a Derivative-Free Algorithm for the Multiobjective Optimization of Adsorption Processes. Industrial & Engineering Chemistry Research. In press.

A2. Magli, F. Capra, F., Gatti, M., Martelli, E., 2018. Process selection, modelling and optimization of a water scrubbing process for energy self-sufficient biogas upgrading plants. Sustainable Energy Technologies and Assessments (in press)

A3. Aldo Bischi, Leonardo Taccari, Emanuele Martelli, Edoardo Amaldi, Giampaolo Manzolini, Paolo Silva, Stefano Campanari, Ennio Macchi, A rolling-horizon optimization algorithm for the long term operational scheduling of cogeneration systems, Energy (in press), 2018, ISSN 0360-5442, https://doi.org/10.1016/j.energy.2017.12.022.

A4. E. Lazzaroni, M. Elsholkami, E. Martelli, A. Elkamel, 2017. Design and simulation of a petcoke gasification polygeneration plant integrated with a bitumen extraction and upgrading facility and net energy analysis. Energy Vol. 141, 2017, pp.880-891.

A5. Gabrielli, P., Gazzani, M., Martelli, E., Mazzotti, M., 2017. Optimal design of multi-energy systems with seasonal storage. "Applied Energy" (Elsevier), ISSN: 03062619, http://dx.doi.org/10.1016/j.apenergy.2017.07.142.

A6. Capra, F., Gazzani, M., Mazzotti, M., Notaro, M., Martelli, E., 2017. Multi-objective optimization of a Pressure-Temperature Swing Adsorption process for biogas upgrading. "Computer Aided Chemical Engineering", vol. 40, pp. 2629-2634, ISBN (Set): 978-0-444-63965-3, ISSN: 1570-7946.

A7. Zatti, M., Martelli, E., Amaldi, E., 2017. A three-stage stochastic optimization model for the design of smart energy districts under uncertainty. "Computer Aided Chemical Engineering" Vol. 40, pp. 2389-2394, ISBN (Set): 978-0-444-63965-3, ISSN: 1570-7946

A8. Magli, F., Capra, F., Bortoluzzi, G., Martelli, E., Gatti, M., 2017. Multi-objective optimization of the water scrubbing process for biogas upgrading. "Computer Aided Chemical Engineering" Vol. 40, pp.2551-2556, ISBN (Set): 978-0-444-63965-3, ISSN: 1570-7946

A9. Gabrielli, P., Gazzani, M., Martelli, E., Mazzotti, M. 2017. A MILP model for the design of multi-energy systems with long-term energy storage. "Computer Aided Chemical Engineering" Vol. 40, pp. 2437-2442, ISBN (Set): 978-0-444-63965-3, ISSN: 1570-7946

A10. Mian, A., Ensinas, A., Martelli, E., Marechal, F., 2017. Multi-objective optimization of utility systems and heat exchanger networks: method and application to the solar assisted hydrothermal gasification case. "Computer Aided Chemical Engineering", Vol. 40, pp. 781-786. ISBN (Set): 978-0-444-63965-3, ISSN: 1570-7946

A11. Elsido, E., Mian, A., Marechal, F., Martelli, E., 2017. A general superstructure for the optimal synthesis and design of power and inverse Rankine cycles. "Computer Aided Chemical Engineering" Vol. 40, pp. 2407-2412. ISBN (Set): 978-0-444-63965-3, ISSN: 1570-7946.

A12. Scaccabarozzi, R., Tavano, M., Invernizzi, C., Martelli, E., 2017. Thermodynamic optimization of heat recovery ORCs for heavy duty internal combustion engines: pure fluids vs. Zeotropic mixtures. ORC. Energy Procedia, Vol. 129, pp. 168-175. ISSN: 18766102, https://doi.org/10.1016/j.egypro.2017.09.099

A13. Elsido, C., Mian, A., Martelli, E., 2017. A systematic methodology for the techno-economic optimization of Organic Rankine Cycles. Energy Procedia, ISSN: 18766102, Vol. 129, pp. 26-33. https://doi.org/10.1016/j.egypro.2017.09.171

A14. Martelli, E., Elsido, C., Mian, A., Marechal, F., 2017. MINLP Model and two-stage Algorithm for the Simultaneous Synthesis of Heat Exchanger Networks, Utility Systems and Heat Recovery Cycles. Computers and Chemical Engineering Vol. 106, pp. 663-689. https://doi.org/10.1016/j.compchemeng.2017.01.043, ISSN: 00981354.

A15. Elsido, C., Bischi, A., Silva, P., Martelli, E., 2017. Two-stage MINLP algorithm for the optimal synthesis and design of networks of CHP units. Energy, Vol. 121, pp. 403-426. https://doi.org/10.1016/j.energy.2017.01.014, ISSN: 03605442.

A16. Ferrari, N., Mancuso, L., Chiesa, P., Martelli, E., & Romano, M. C., 2017. Oxy-turbine for Power Plant with CO2 capture. Energy Procedia, Vol. 114, pp. 471-480. ISSN: 18766102, https://doi.org/10.1016/j.egypro.2017.03.1189.

A17. Scaccabarozzi, R., Gatti, M., & Martelli, E., 2017. Thermodynamic optimization and part-load analysis of the NET Power Cycle. ISSN: 18766102, Energy Procedia, Vol. 114, pp. 551-560. https://doi.org/10.1016/j.egypro.2017.03.1197

A18. Forsyth, J., Lodge, S., Consonni, S., Di Bona, D., Martelli, E., Scaccabarozzi, R., & Viganò, F., 2017. Evaluation of five alternative CO 2 capture technologies with insights to inform further development. Energy Procedia, Vol. 114, pp. 2599-2610. ISSN: 18766102, https://doi.org/10.1016/j.egypro.2017.03.1419

A19. Lazzaroni, E. F., Elsholkami, M., Arbiv, I., Martelli, E., Elkamel, A., Fowler, M., 2016. Energy infrastructure modeling for the oil sands industry: Current situation. Applied Energy, vol 181, pp. 435-445. https://doi.org/10.1016/j.apenergy.2016.08.072, ISSN: 03062619.

A20. Scaccabarozzi, R., Gatti, M., Martelli, E., (2016). Thermodynamic analysis and numerical optimization of the NET Power oxycombustion cycle. Applied Energy Vol. 178, pp. 505-526. https://doi.org/10.1016/j.apenergy.2016.06.060, ISSN: 03062619.

A21. Martelli, E., Elsido, C., & Mian, A., Marechal, F. (2016). Synthesis of Heat Exchanger Networks and Utility Systems : sequential initialization procedure and simultaneous MINLP algorithm. Computer Aided Chemical Engineering (Elsevier book series), Vol. 38, 1450–1454. ISBN: 9780444634283, ISSN: 15707946, DOI: 10.1016/B978-0-444-63428-3.50246-0.

A22. Mian, A., Martelli, E., & Marchal, F. (2016). Multi − period Sequential Synthesis of Heat Exchanger Networks and Utility Systems including storages. Computer Aided Chemical Engineering (Elsevier book series), Vol. 38, 1449–1454, ISSN: 15707946, ISBN: 978-044463428-3, DOI: 10.1016/B978-0-444-63428-3.50166-1.

A23. Joss, L., Capra, F., Gazzani, M., Mazzotti, M., Martelli, E. (2016). MO-MCS : An Efficient Multi-objective Optimization Algorithm for the Optimization of Temperature / Pressure Swing Adsorption Cycles. Computer Aided Chemical Engineering (Elsevier book series), Vol. 38, pp. 1467–1472, ISSN: 15707946, ISBN: 978-044463428-3, DOI: 10.1016/B978-0-444-63428-3.50249-6.

A24. Bischi, A., Pérez-Iribarren, E., Campanari, S., Manzolini, G., Martelli, E., Silva, P., Macchi, E., Pedro SalaLizarraga, J., 2016. Distributed cogeneration systems optimization: multi-step and mixed integer linear programming approaches. International Journal of Green Energy, Volume 13, Issue 8: Energy Solutions for a Sustainable World. ISSN: 15435075, http://dx.doi.org/10.1080/15435075.2016.1161635

A25. Bischi, A., Lico, S., Cortigiani, T., Manzolini, G., Silva, P., Martelli, E., 2016. Scheduling optimization of combined heat and power units with multiple degrees of freedom based on the superposition principle. Proceedings of the ECOS 2016 conference, June 2016, Portoroz, Slovenia.

A26. Mian, A., Martelli, E., Marechal, F., 2016. Framework for the Multiperiod Sequential Synthesis of Heat Exchanger Networks with Selection, Design, and Scheduling of Multiple Utilities. Ind. Eng. Chem. Res., 55, pp. 168-186, ISSN: 08885885, DOI: 10.1021/acs.iecr.5b02104.

A27. Yakaboylu, O., Yapar, G., Recalde, M., Harinck, J., Smit, K., Martelli, E., Jong, W. (2015). Supercritical Water Gasification of Biomass: An Integrated Kinetic Model for the Prediction of Product Compounds", Industrial & Engineering Chemistry Research, 54 (33), pp 8100–8112, DOI: 10.1021/acs.iecr.5b02019, ISSN: 08885885.

A28. Martelli, E., Capra, F., & Consonni, S., 2015. Numerical Optimization of combined heat and power Organic Rankine Cycles - Part A: Design Optimization. Energy Vol. 90 Part 1, pp.310-328, http://dx.doi.org/10.1016/j.energy.2015.06.111, ISSN: 03605442.

A29. Capra, F., & Martelli, E., 2015. Numerical Optimization of combined heat and power Organic Rankine Cycles - Part B: simultaneous design & part-load optimization. Energy Vol. 90 Part 1, pp. 329 Energy, pp. 329-343, http://dx.doi.org/10.1016/j.energy.2015.06.113, ISSN: 03605442.

A30. Bischi A., Taccari L., Martelli E., Amaldi E., Manzolini G., Silva P. Campanari S. Macchi E., 2015. "A RollingHorizon MILP Optimization Method for the Operational Scheduling of Tri-generation Systems with Incentives". Proceedings of ECOS International Conference, Pau, France, July 2015, ISBN: 9782955553909.

A31. Gatti M., Martelli E., Marechal F., Consonni S., "Multi-objective Optimization of a Selexol® Process for the Selective Removal of CO2 and H2S from Coal-derived Syngas". Proceedings of ECOS International Conference, Pau, France, July 2015, ISBN: 9782955553909.

A32. Martelli, E., Mian, A., Marechal, F., 2015. MINLP Model and Two-level Algorithm for the Simultaneous Synthesis of Heat Exchanger Networks and Utility Systems. Computer Aided Chemical Engineering (Elsevier book series), Vol. 37, pp. 1979-1984. DOI: 10.1016/B978-0-444-63576-1.50024-8, ISBN 978-0-444-63429-0, ISSN: 15707946.

A33. Taccari, L., Amaldi, E., Martelli, E., Bischi, A., 2015. Short-term planning of cogeneration power plants: a comparison between MINLP and piecewise-linear MILP formulations. Computer Aided Chemical Engineering (Elsevier book series), Vol. 37, pp. 2429-2434. DOI: 10.1016/B978-0-444-63576-1.50099-6, ISBN 978-0444-63429-0, ISSN: 15707946.

A34. Nord, L. O., Martelli, E., Bolland, O., 2014. Weight and power optimization of steam bottoming cycle for offshore oil and gas installations. Energy, vol. 76, pp. 891-898, doi:10.1016/j.energy.2014.08.090, ISSN: 03605442.

A35. Aldo Bischi; Stefano Campanari; Alberto Castiglioni; Giampaolo Manzolini; Emanuele Martelli; Paolo Silva; Ennio Macchi, 2014. "Tri-Generation Systems Optimization: Comparison of Heuristic and Mixed Integer Linear Programming Approaches". Proceedings of ASME Turbo-Expo 2014, June 16-20 2014 Düsseldorf, Germany. Paper #GT2014-27028, DOI: 10.1115/GT2014-27028.

A36. Manuele Gatti, Emanuele Martelli, François Maréchal, Stefano Consonni, 2014. Multi-objective optimization of a Rectisol process. Computer Aided Chemical Engineering (Elsevier book series), vol. 33, pp. 12491254. DOI: 10.1016/B978-0-444-63455-9.50043-X. ISSN: 15707946.

A37. Gatti M., Martelli E., Marechal F., Consonni S., 2014. Review, Modelling, Heat Integration, and Improved Schemes of Rectisol-based processes for CO2 capture. Applied Thermal Engineering, Vol. 70(2), pp. 1123-1140, ISSN: 13594311, http://dx.doi.org/10.1016/j.applthermaleng.2014.05.001.

A38. Lanzini A., Kreutz T., Martelli E., Santarelli M., 2014. Energy and economic performance of novel integrated gasifier fuel cell (IGFC) cycles with carbon capture. International Journal of Greenhouse Gas Control, 26, pp. 169-184. ISSN: 17505836, DOI: 10.1016/j.ijggc.2014.04.028.

A39. Aldo Bischi; Leonardo Taccari; Emanuele Martelli; Edoardo Amaldi; Giampaolo Manzolini; Paolo Silva; Stefano Campanari; Ennio Macchi, 2014. A detailed optimization model for combined cooling, heat and power system operation planning. Energy, Vol. 74, pp. 12-26, ISSN: 03605442, DOI: 10.1016/j.energy.2014.02.042.

A40. Martelli E., Amaldi E., 2014. PGS-COM, A Hybrid Method for Non-Smooth Black-box Constrained Optimization. Computers and Chemical Engineering, Vol. 63, pp. 108-139, ISSN: 00981354, DOI: 10.1016/j.compchemeng.2013.12.014.

A41. Matteo Gazzani, Paolo Chiesa, Emanuele Martelli, Stefano Sigali, Iarno Brunetti, 2014. Using Hydrogen as Gas Turbine Fuel: Premixed Versus Diffusive Combustors. . Journal of Engineering for Gas Turbines and Power, 136(5), pp. 051504-1 - 051504-10, ISSN: 07424795, DOI: 10.1115/1.4026085.

A42. Gatti M., Marechal F., Martelli E., Consonni S., 2013. Thermodynamic Analysis, Energy Integration and Flowsheet Improvement of a Methanol Absorption Acid Gas Removal Process. Chemical Engineering Transactions, Vol. 35, p. 211-216. ISBN 978-88-95608-26-6; ISSN 1974-9791, DOI: 10.3303/CET1335035.

A43. Matteo Gazzani, Paolo Chiesa, Emanuele Martelli, Stefano Sigali, Iarno Brunetti, 2013. Using Hydrogen as Gas Turbine Fuel: Premixed Versus Diffusive Combustors. Proceedings of ASME Turbo-Expo 2013, Texas, San Antonio, June 2013. Paper # GT2013-94701, DOI: 10.1115/GT2013-94701, ISBN: 978-079185513-3.

A44. Aldo Bischi, Leonardo Taccari, Emanuele Martelli, Edoardo Amaldi, Giampaolo Manzolini, Paolo Silva, Stefano Campanari, Ennio Macchi, 2013. A Detailed Optimization Model for Combined Cooling, heat and power system operation planning. Proceedings of 26th International Conference on Efficiency, Cost, Optimization, Simulation and Environmental Impact of Energy Systems, ECOS 2013; Guilin; China; 16 July 2013 through 19 July 2013.

A45. Martelli E., Amaldi E., 2013. A Novel Hybrid Direct Search Method for Constrained Non-Smooth Black-Box Problems. Computer Aided Chemical Engineering (Elsevier book series), vol. 32, pp. 295-300, ISSN: 15707946; ISBN: 978-0-444-63234-0; DOI: 10.1016/B978-0-444-63234-0.50050-6.

A46. Martelli, E., Kreutz, T., Gatti, M., Chiesa, P., Consonni, S., 2013. Numerical Optimization of Steam Cycles and Steam Generators Designs for Coal to FT plants, Chemical Engineering Research and Design, 91 (8), pp. 1467-1482, ISBN: 978-0-444-59431-0; ISSN: 02638762; DOI: 10.1016/j.cherd.2013.02.026.

A47. Martelli E., Kreutz T., Gatti M., Chiesa P., Consonni S., 2012. Design Criteria and Optimization of Heat Recovery Steam Cycles for high-efficiency, coal-fired, Fischer-Tropsch plants. Proceedings of the International ASME Turbo-Expo 2012 Conference, June 11-15 2012, Copenhagen (Paper No. GT201269661, pp. 363-373; ISBN: 978-079184469-4; DOI: 10.1115/GT2012-69661).

A48. Lanzini A., Kreutz T., Martelli E., Santarelli M., 2012. Techno-economic analysis of integrated SOFC coal gasifier power plants capturing CO2. Proceedings of the International ASME Turbo-Expo 2012 Conference, June 11-15 2012, Copenhagen (Paper No. GT2012-69579, pp. 337-347; ISBN: 978-079184469-4; DOI: 10.1115/GT2012-69579).

A49. Martelli E., Kreutz T., Gatti M., Chiesa P., Consonni S., 2012. "Numerical Optimization of Steam Cycles and Steam Generators for a coal to FT plant". Computer Aided Chemical Engineering (Elsevier book series), Vol. 30, pp. 297-301 (ISSN: 15707946; DOI: 10.1016/B978-0-444-59519-5.50060-5).

A50. E. Martelli, L. Nord, O. Bolland, 2012. Design criteria and optimization of heat recovery steam cycles for integrated reforming combined cycles with CO2 capture. Applied Energy Vol. 92, pp. 255-268 (ISSN: 03062619; DOI: 10.1016/j.apenergy.2011.10.043).

A51. Martelli E., Amaldi E., Consonni S. , 2011. Numerical optimization of heat recovery steam cycles: Mathematical model, two-stage algorithm and applications. Computers and Chemical Engineering Vol. 35(12), 2011, pp. 2799-2823, ISSN: 00981354; DOI: 10.1016/j.compchemeng.2011.04.015.

A52. Martelli E., Kreutz T., Carbo M., Consonni S., Jansen D., 2011. Shell coal IGCCS with carbon capture: Conventional gas quench vs. innovative configurations. Applied Energy Vol. 88 (11), pp. 3978-3989 (ISSN: 03062619; DOI: 10.1016/j.apenergy.2011.04.046).

A53. Lanzini A., Kreutz T., Martelli E., Santarelli M., 2011. Power generation from Solid Oxide Fuel Cells (SOFC) in different fuel scenarios and with/without carbon capture. Proceedings of the European Fuel Cell - Piero Lunghi Conference & Exhibition, December 14-16, 2011, Rome, Italy.

A54. Kreutz T., Martelli E., Carbo M., Consonni S., Jansen D., 2010. Shell Gasifier-Based Coal IGCC with CO2 Capture and Storage: Partial Water Quench vs. Novel Water-Gas Shift. Proceedings of the International

Conference ASME Turbo - Expo 2010, June 2010, Glasgow, UK, Paper No. GT2010-22859, pp. 583-592, DOI: 10.1115/GT2010-22859; ISBN: 978-079184396-3.

A55. Martelli E., Kreutz T., Consonni S, 2009. Comparison of coal IGCC with and without CO2 capture and storage: Shell gasification with standard vs. partial water quench. Energy Procedia, Vol. 1, pp. 607-614, DOI: 10.1016/j.egypro.2009.01.080, ISSN: 1876-6102.

Conferences and Proceedings (NOT Indexed on Scopus)

C1. Manno, A., Trabucchi, S., Amaldi, E., Martelli, E., Casella, F., 2016. Numerical Optimization of the Start-Up Phase of a Concentrated Solar Power Plant. Bi-annual congress of the Italian Society of Industrial and Applied Mathematics (SIMAI), Milan, September 2016.

C2. Joss L., Capra F., Gazzani M., Martelli E., Mazzotti M.: OPTIMIZATION OF TEMPERATURE SWING ADSORPTION CYCLES FOR CO2 RECOVERY: CHALLENGES AND COMPARISON OF OPTIMIZATION ALGORITHMS, ECCE 10, September 2015, Nice, France.

C3. Amaldi E., Martelli E., 2014. PGS-COM: A Novel Hybrid Direct Search Method for Constrained Non-Smooth Black-Box Problems. Presented at the 44th Annual Conference of the Italian Operational Research Society (AIRO 2014), September 2-4, 2014, Como.

C4. Leonardo Taccari, Edoardo Amaldi, Emanuele Martelli, Aldo Bischi, 2013. Optimization models for planning the operations of cogeneration systems. COST Workshop on Mixed Integer Nonlinear Programming, 30 September - 2 October, Institute Henri Poincare (IHP), Paris (FR).

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P2. European Patent WO 2011095759, Title: “Separation of Gases”, publication date: 11 – August – 2011, inventors: Bailey M. E.; Consonni S.; Forsyth J. A.; Gatti M.; Martelli E.; Moryi Y.; Ogura K.; Viganò F. Applicant: BP Alternative Energy. It is a hybrid process based on alcohol-absorption and phase-change process for the separation of CO_2 and H_2S from syngas and similar gas mixtures.

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Scientific Committee membership

- Scientific Committee member of the 10th European Conference of Chemical Engineering (ECCE), Nice, France, Sept. 2015.
- Scientific Committee member of the 27th ESCAPE Conference, European Symposium of Computer Aided Chemical Engineering, October 2017, Barcelona, Spain.
- Scientific Committee member of the 28th ESCAPE Conference, European Symposium of Computer Aided Chemical Engineering, June 2018, Graz, Austria.