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Roberto Capata, Ph.D

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Education

Sep 1988 – Oct 1994 **Sapienza University of Rome**
Master degree, Mechanical Engineering
Roma, Italy

Thesis *Experimental Comparison on different Cogenerative Power Unit*

Research Experience

Jan 1996 – May 2000 PhD
Jan 2001 – present Sapienza University of Rome, Department of Mechanical and Aerospace
Engineering
Roma, Italy

Skills & Activities

Skills Heat Exchangers, Internal Combustion Engines, Mechanical Engineering, Organic Rankine Cycle, Engineering Thermodynamics, Turbomachinery, Gas Turbines, Electric Vehicles, Ultra Micro Gas Turbine, Reciprocating Compressors & Pumps, Diesel Engines, Thermal Engineering, Battery, Microelectromechanical Systems (MEMS), Industrial Engineering, Energy, Applied Thermodynamics

Languages English (fluent), Italian (mother language)

Scientific Memberships ASME (American Society of Mechanical Engineers) member

Publication Highlights

Books

Book Chapters

Roberto Capata: *Ultra Micro Gas Turbines. Efficiency, Performance and Robustness of Gas Turbines*, 04/2012; , ISBN: 978-953-51-0464-3

Journal Publications

Roberto Capata, Kliton Kylykbashi, Alfonso Calabria, Mario Di Veroli: *Experimental Tests on a Pre-Heated Combustion Chamber for Ultra Micro Gas Turbine Device: Air/Fuel Ratio Evaluation*. *Engineering* 11/2016; 08(11). DOI:10.4236/eng.2016.811071

Roberto Capata: *An artificial neural network-based diagnostic methodology for gas turbine path analysis – part II: case study*. 10/2016; 1(6). DOI:10.1007/s40974-016-0042-7

Roberto Capata: *An artificial neural network-based diagnostic methodology for gas turbine path analysis – part I: introduction*. 09/2016; DOI:10.1007/s40974-016-0041-8

Roberto Capata, Kliton Bylykbashi, Federico Testa: *A Model Proposal for the Electric Energy Valorization in a PV Power Plant equipped with CAES System*.

Roberto Capata: *Implementing a Hybrid Series Bus with Gas Turbine Device -A Preliminary Study*.

Roberto Capata, Kliton Kylykbashi, Alfonso Calabria, Mario Di Veroli: *Experimental Tests on a Pre-Heated Combustion Chamber for Ultra Micro Gas Turbine Device: Air/Fuel Ratio Evaluation*. *Engineering* 01/2016; 08(11). DOI:10.4236/eng.2016.811041

Giacomo Bonafoni, Roberto Capata, Editor Editor: *Proposed Design Procedure of a Helical Coil Heat Exchanger for an Orc Energy Recovery System for Vehicular Application*.

Rossana Cecchi, Matteo Verotti, Roberto Capata, Alden Dochshanov, Giovanni Battista Broggiato, Rocco Crescenzi, Marco Balucani, Stefano Natali, Giovanna Razzano, Franco Lucchese, Alvisè Bagolini, Pierluigi Bellutti, Enrico Sciubba, Nicola P. Belfiore, Fondazione, Bruno Kessler: *Development of Micro-Grippers for Tissue and Cell Manipulation with Direct Morphological Comparison*. *Micromachines* 11/2015; 6(11). DOI:10.3390/mi6111451

Rossana Cecchi, Matteo Verotti, Roberto Capata, Alden Dochshanov, Giovanni Battista Broggiato, Rocco Crescenzi, Marco Balucani, Stefano Natali, Giovanna Razzano, Franco Lucchese, Alvisè Bagolini, Pierluigi Bellutti, Enrico Sciubba, Nicola Pio Belfiore: *Silicon Micro Grippers for Tissue and Cell Manipulation*. *Micromachines* 11/2015; 6(11).

Giacomo Bonafoni, Roberto Capata: *Proposed Design Procedure of a Helical Coil Heat Exchanger for an Orc Energy Recovery System for Vehicular Application*.

Roberto Capata, Leone Martellucci: *Aerodynamic Brake for Formula Cars*. *World Journal of Mechanics* 10/2015; volume 5. DOI:10.4236/wjm.2015.510018

- Roberto Capata, Enrico Sciubba: *Experimental Fitting of the Re-Scaled Balje Maps for Low Reynolds Radial Turbomachinery*. *Energies* 07/2015; 8(8). DOI:10.3390/en8087986
- Roberto Capata: *Experimental Tests of the Operating Conditions of a Micro Gas Turbine Device*. *Energy and Power Engineering* 04/2015; volume 9(2015). DOI:10.17265/1934-8975/2015.04.002
- Roberto Capata, Erasmo Zangrillo: *Preliminary Design of Compact Condenser in an Organic Rankine Cycle System for the Low Grade Waste Heat Recovery*. *Energies* 11/2014; *Energies* 2014, 7, 8008-8035.(Special Issue "Organic rankine Cycle (ORC)"). DOI:10.3390/en7128008
- Roberto Capata, Gustavo Hernandez: *Proposal Design Procedure and Preliminary Simulation of Turbo Expander for Small Size (2?10 kW) Organic Rankine Cycle (ORC)*.
- Roberto Capata, Gustavo Hernandez: *Preliminary Design and Simulation of a Turbo Expander for Small Rated Power Organic Rankine Cycle (ORC)*. *Energies* 11/2014; 7(Special Issue "Organic Rankine Cycle (ORC)"). DOI:10.3390/en7117067
- Fabio Cignini, Leone Martellucci, Roberto Capata, Sergio De Domenico: *Hybrid Power Pack: Hybrid Powertrain for City Cars*. *Journal of Transportation Technologies* 10/2014; volume 4(2014). DOI:10.4236/jtts.2014.44028
- Roberto Capata, Claudia Toro: *Feasibility analysis of a small-scale ORC energy recovery system for vehicular application*. *Energy Conversion and Management* 06/2014; volume 86(2014). DOI:10.1016/j.enconman.2014.06.024
- R. Capata, L. Marino, E. Sciubba: *A hybrid propulsion system for a high-endurance UAV: configuration selection, aerodynamic study, and gas turbine bench tests*. 03/2014; 2(01). DOI:10.1139/juvs-2013-0005
- Roberto Capata, Claudia Toro: *Feasibility analysis of a small-scale ORC energy recovery system for vehicular application*. *Energy Conversion and Management* 01/2014; 86.
- Roberto Capata, Enrico Sciubba: *A Small-Scale ORC Energy Recovery System for Vehicular Application: Feasibility Analysis and Preliminary Components Design*.
- Roberto Capata, Enrico Sciubba: *The LETHE© (Low Emissions Turbo-Hybrid Engine) city car of the University of Roma 1: Final proposed configuration*. *Energy* 07/2013; 58. DOI:10.1016/j.energy.2013.06.019
- Roberto Capata, Enrico Sciubba: *The Low Emission Turbogas Hybrid Vehicle Concept – Preliminary Simulation and Vehicle Packaging*. *Journal of Energy Resources Technology* 06/2013; 135. DOI:10.1115/1.4024118
- Roberto Capata, Alfonso Calabria, Mario Di Veroli, Gianluca Pepe: *Testing of the Ultra-Micro Gas Turbine Devices (1 - 10 kW) for Portable Power Generation at University of Roma 1: First Tests Results*. *Engineering* 05/2013; volume n. 5(issue n. 5). DOI:10.4236/eng.2013.55058
- Roberto Capata, Mario Di Veroli: *Mathematical Modelling of Biomass Gasification in a Circulating Fluidized Bed CFB Reactor*. *Journal of Sustainable Bioenergy Systems* 12/2012; Volume 2(Issue 4). DOI:10.4236/jsbs.2012.24022
- Roberto Capata, Alfonso Calabria: *Power Generation with Vegetable Oils in the Italian Scenario: A 20 MW Case Study. Technical Feasibility Analysis and Economical Aspects*. *Engineering* 09/2012; volume 4(issue 2). DOI:10.4236/eng.2012.49070

- Capata Roberto, Coccia Antonio, Lora Max: *A proposal for CO 2 Abatement in urban areas: The UDR1-Lethe® turbo-hybrid vehicle*. *Energies* 12/2011; 4(3). DOI:10.3390/en4030368
- Roberto Capata: *Lethe®-Udr1 Passenger Sedan Final Proposed Configuration*. *Journal of Transportation Technologies* 10/2011; volume 1(issue 4). DOI:10.4236/jtts.2011.14011
- Capata Roberto, Coccia Antonino: *Procedure for the Design of a Hybrid-Series Vehicle and the Hybridization Degree Choice*. *Energies* 03/2010; 3(3). DOI:10.3390/en3030450
- R. Capata, M. Lora: *The LETHETM Gas Turbine Hybrid Prototype Vehicle of the University of Roma 1: Drive Cycle Analysis of Model Vehicle Management Unit*. *Journal of Energy Resources Technology* 06/2007; 129(2). DOI:10.1115/1.2718581
- Roberto Capata, Enrico Sciubba: *The concept of the gas turbine-based hybrid vehicle: System, design and configuration issues*. *International Journal of Energy Research* 07/2006; 30(9). DOI:10.1002/er.1178
- Capata Roberto, Sciubba Enrico: *Preliminary Considerations on the Thermodynamic Feasibility and Possible Design of Ultra-, Micro- and Nano-Gas Turbines*. *International Journal of Thermodynamics* 06/2006; 9(2). DOI:10.5541/ijot.171
- Capata Roberto, Sciubba Enrico: *An Innovative Solution for Suburban Railroad Transportation: The Gas Turbine-Hybrid Train*. *International Journal of Thermodynamics* 03/2005; 8(1). DOI:10.5541/ijot.146
- Roberto Capata, Emiliano Cioffarelli, Enrico Sciubba: *A Gas Turbine-Based Hybrid Vehicle – Part II: Technological and Configuration Issues*. *Journal of Engineering for Gas Turbines and Power* 07/2003; Volume 125(3). DOI:10.1115/1.1584475
- R. Capata, V. Naso, F. Orecchini: *Social impact of energy systems*. *Renewable Energy* 09/1996; 9(1). DOI:10.1016/0960-1481(96)88513-2

Patents

- Roberto Capata, Enrico sciubba: *Sistema ORC per il recupero termico dal calore sensibile dei gas di scarico di un motore termico per autovettura*. Ref. No: RM2011 A 000671 - classe F01K2500, Year: 12/2011
- Roberto Capata, Enrico Sciubba: *Turbogas Migliorato: Micro camera di combustione rigenerativa per gruppi ultra-micro turbogas*. Ref. No: RM2011 A 000277 Classe F02C, Year: 06/2011

Conference Proceedings

- Roberto Capata, Kliton Kylykbashi, Federico Testa: *A Model Proposal for the Electric Energy Valorization in a PV Power Plant equipped with CAES System*. 7th Annual International Conference “Information Systems and Technology Innovations: the New Paradigm for a Smarter Economy”, Tirana, Albania; 06/2016
- Roberto Capata, Kliton Bylykbashi, Alfonso Calabria, Emilio D'Amato, Mario Di Veroli: *NITROX CAPTURE AND ABATMENT BY DIGESTED SLURRY STRIP-PING PLANT: A CASE STUDY*. 7th Annual International Conference “Information Systems and Technology Innovations: the New Paradigm for a Smarter Economy”, Tirana, Albania; 06/2016

Roberto Capata, Enrico Sciubba, Luigi Menna, Andrea Brotzu, Ferdinando Felli, Daniela Pilone: *DESIGN, PROTOTYPING AND PRELIMINARY TESTING OF A TI-AL GAS TURBINE BLADE*. IMECE 2015 - International Mechanical Engineering Congress and Exhibition, Houston, Texas (USA); 11/2015

Roberto Capata, Alfonso Calabria, Mario di Veroli, Silvia Sangiorgio: *Preliminary feasibility study of a floating offshore wind plant along Italian coastal area*. ECOS 2015 - THE 28TH INTERNATIONAL CONFERENCE ON EFFICIENCY, COST, OPTIMIZATION, SIMULATION AND ENVIRONMENTAL IMPACT OF ENERGY SYSTEMS, PAU, FRANCE; 06/2015

Roberto Capata, Alfonso Calabria, Mario Di Veroli, Silvia Sangiorgio: *Energy market impact of renewable energy source*. 15th International Conference on Environment and Electrical Engineering IEEE2015, Roma, Italy; 06/2015

Roberto Capata, Gino Bella, Enrico Sciubba, Laura Triboli, Michele Barbieri, Elio Jannelli: *A Real Time Energy Management Strategy for Plug-in Hybrid Electric Vehicles based on Optimal Control Theory*. ENERGY PROCEDIA; 12/2014

Roberto Capata, Claudia Toro: *Small-Scale ORC Energy Recovery System for Wasted Heat: Thermodynamic Feasibility Analysis and Preliminary Expander Design*. 1st Int. e-Conf. on Energies; 03/2014

Roberto Capata: *A SMALL-SCALE ORC ENERGY RECOVERY SYSTEM FOR VEHICULAR APPLICATION: FEASIBILITY ANALYSIS AND PRELIMINARY COMPONENTS DESIGN*. ASME 2013 International Mechanical Engineering Congress and Exposition, San Diego, California; 11/2013

Roberto Capata, Enrico Sciubba: *Use of Modified Balje Maps in the Design of Low Reynolds Number Turbochargers*. ASME IMECE 2012; 11/2012

Roberto Capata, Enrico Sciubba, Claudia Toro: *The Gas Turbine Hybrid Vehicle LETHE™ at UDR1: The On-Board Innovative ORC Energy Recovery System – Feasibility Analysis*. IMECE 2012; 11/2012

Roberto Capata, Enrico Sciubba: *the LETHE® city car of the university of Roma 1: final proposed configuration*. 25° ECOS Conference; 06/2012

Alfonso Calabria, Roberto Capata, Mario Di Veroli: *The Power Generation With Vegetable Oils: A Case Study*. ASME 2011 International Mechanical Engineering Congress and Exposition; 11/2011

Roberto Capata, Luca Marino, Enrico Sciubba: *A Hybrid Propulsion System for a High-Endurance UAV: Configuration Selection and Aerodynamic Study*. ASME IMECE 2011; 11/2011

Roberto Capata, Luca Marino, Enrico Sciubba: *Preliminary design of hybrid propulsion system of high endurance*. ASME-IMECE 2010; 11/2010

Roberto Capata, Luca Marino, Enrico Sciubba: *Preliminary Design of a Hybrid Propulsion System for High-Endurance UAV*. ASME 2010 International Mechanical Engineering Congress and Exposition; 01/2010

Roberto Capata, Enrico Sciubba: *The a-Prototype of an Ultra-Micro-Gas Turbine at the University of Roma 1: Final Assembly and Tests*. ASME 2009 International Mechanical Engineering Congress and Exposition; 11/2009

Roberto Capata, Giampaolo Saracino: *The Ultra-Micro Gas Turbine Generator project at UDR1: experimental assessment of the compressor map and of the regenerative combustion chamber efficiency*. 22nd ECOS Conference; 08/2009

- R. Capata, E. Sciubba: *Further Development and Preliminary Testing of the a-Prototype of an Ultra-Micro Gas Turbine for Portable Power Generation*. ASME 2008 International Mechanical Engineering Congress and Exposition; 01/2008
- R. Capata, E. Sciubba: *Design and Performance Prediction of a Ultra-Micro Gas Turbine for Portable Power Generation*. ASME 2007 International Mechanical Engineering Congress and Exposition; 01/2007
- R. Capata, A. Coccia, M. Lora, E. Sciubba: *The Gas Turbine Hybrid Vehicle Prototype of the University of Roma 1: Status Review*. ASME 2005 International Mechanical Engineering Congress and Exposition; 01/2005