SCHEDULE AT A GLANCE

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DAY 1 **Wednesday 4th September 2019**	*DAY 2* **Thursday 5th September 2019**	*DAY 3* **Friday 6th September 2019**
Sustainable Power Plants	**Thermal and Electrical Hybrid Systems**	**Energy micropolygeneration and harvesting**
Track Chair: *Prof. Alessandro Sorce*	*Track Chair:* *Dr. David Tucker*	*Track Chair:* *Prof. Abdulnaser Sayma*
8.00 – Registration	8.00 – Registration	8.00 – Registration
9.00 – Opening session	9.00 – Opening session	9.00 – Opening session
10.00 – Coffee break & Exhibition time	9.30 – Panel session	9.30 – Panel session
10.15 – Panel session	10.15 – Coffee break & Exhibition time	10.15 – Coffee break & Exhibition time
11.15 – Conference sessions	10:30 – Panel session	10.45 – Conference sessions
	11:15 – Conference sessions	
13.15 – Lunch	13.15 – Lunch	13.15 – Lunch
14.45 – Keynote	14.30 – Keynote	14.30 – Keynotes
15.30 – Coffee break & Exhibition time	15.00 – Coffee break & Exhibition time	15.00 – Coffee break & Exhibition time
15.45 – Conference sessions	15.15 – Conference sessions	15.15 – Conference sessions
17.15 – Tirreno Power combined cycle & Reception Cocktail	17:15 – Open Lab at Savona campus & Exhibition time	18.00 – Savona Campus Smart Grid - visit
	19.30 – Gala dinner	

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Opening sessions – International Research Programs

Day 1: Beyond 2020: zero emission gas turbine power plants for the European Energy Union
Mirko Bothien, Ansaldo Energia, Genoa, Italy

Day 1: Europe beyond 2020: Horizon Europe on Climate, Energy and Mobility
Donato Zangani, RINA Consulting SpA, Italy – Aristide F. Massardo, University of Genoa, Italy

Day 2: US beyond 2020: USA research programs on clean energy
Angelos Kokkinos, Department of Energy, USA

Day 3: South America beyond 2020: MERCOSUR research programs for sustainable energy production
Gustavo A. Riveros, Parque Tecnológico ITAIPU, Paraguay

Keynote Lectures

Day 1: Flexible gas turbines for the renewable age
Toshinori Watanabe, Gas Turbine Society of Japan, Japan

Day 2: ORC power systems, opportunities with low GWP refrigerants
Vishnu Sishtla, UTC Climate Control and Security, US

Day 3: The regulatory perspectives of RES integration for distributed generation and smart grids
Andrea Galliani, Autorità di Regolazione per Energia Reti e Ambiente (ARERA), Italy

PANEL SESSION DAY 1

	The importance of gas turbine flexibility for future markets
	"Auditorium Tirreno Power" – Room AN1
	Chair: Christer Bjorkqvist European turbine Network, Belgium
10:15	**Panelists:** Giorgio Torelli, Tirreno Power, *Italy;* Federico Bonzani, Ansaldo Energia, *Italy*; Sven Bosser, Mitsubishi Hitachi Power Systems Europe GmbH, *Germany;* Alessandro Sorce, University of Genoa, *Italy;* Luca Piantelli, IREN, *Italy* **Abstract** The panel will address the relevance of gas turbine flexibility in all markets both with regard to operational flexibility as well as fuel flexibility. OEMs, utilities and industrial users will highlight their technical expectations for future developments, related to operational flexibility as well as the importance of extending the fuel spectrum either/both related to gas quality as well as to low or carbon neutral fuels like hydrogen, ammonia, biomass. Related European projects: PUMP-HEAT, FLEX-TURBINE, TURBO-REFLEX

TECHNICAL SESSION DAY 1

Wednesday 4th September			Morning
	Sustainable and Flexible Power Plant	**Thermal Storage for Flexibility: Options and Constraints**	**Dynamic & Control for Power Plant Flexibility**
	"Auditorium Tirreno Power" Room AN1	Room LA218	Room LA117
	Chair: Gianluca Tomaino Ansaldo Energia	Chair: Justin Chiu KTH Royal Institute of Technology	Chair: Adrien Reveillere Siemens
11:15	**SUPEHR'19-59** **Assessment Of A Solar Plant Solution Interconnected To National Grid System In Paraguay** Peter Lindstrom, Gustavo Riveros-Godoy and Massimo Rivarolo	**SUPEHR'19-53** **Integration Of Heat Pump And Gas Turbine Combined Cycle: Market And Climatic Conditions For Power Plant Flexibility Enhancement** Andrea Giugno, Alessandro Sorce, Alessandra Cuneo and Stefano Barberis	**SUPEHR'19-36** **Dynamic Simulation Of A Combined Cycle For Power Plant Flexibility Enhancement** Adrien Réveillère, Martin Longeon and Iacopo Rossi
11:45	**SUPEHR'19-62** **Heat Recovery From Combined Cycle Power Plants For Heat Pumps** Alberto Vannoni, Alessandro Sorce, Sven Bosser and Torsten Buddenberg	**SUPEHR'19-8** **Thermal Energy Storage In Combined Cycle Power Plants: Comparing Finite Volume To Finite Element Methods** Vasilis Gkoutzamanis, Justin Chiu, Guillaume Martin and Anestis Kalfas	**SUPEHR'19-31** **Flexibilization Of Gas Turbine Combined Cycle Via Heat Pump: Development Of Control Logics Via Software-In-The-Loop Application** Iacopo Rossi, Adrien Reveillere and Alberto Traverso
12:15	**SUPEHR'19-70** **Compressor Retrofittable Solutions In Heavy-Duty Gas Turbines For Minimum Environmental Load Reduction** Stefano Gino Mosele, Andrea Schneider, Tiziano Garbarino, Lorenzo Cozzi, Andrea Arnone, Georgios Goinis and Simon Hedkvist	**SUPEHR'19-47** **Numerical Study Of A Latent Heat Storage Unit With Cylindrically Encapsulated Pcms** Tianhao Xu, Justin Ningwei Chiu and Samer Sawalha	**SUPEHR'19-25** **Development And Installation Of Control System For A Test Rig Interconnecting A Micro Gas Turbine, A Heat Pump And A PCM Storage System** Iacopo Rossi and Romain Cailliere
12:45	**SUPEHR'19-81** **From Remote Monitoring To Predictive Diagnostic Of Combined Cycle Power Plants** Paolo Stanchi, Sandro Gollini, Francesco Fanciulli, Simone Ghettini and Giuseppe di Bartolo	**SUPEHR'19-94** **Packed-Bed Sensible Thermal Energy Storage System Using Demolition Wastes For Concentrated Solar Power Plants** Burcu Koçak and Halime Paksoy	**SUPEHR'19-49** **Dynamic Modeling And Simulation Of A Heat Pump System For Enhancing Cycle Flexibility** Yutaka Watanabe and Alberto Traverso

Wednesday 4th September		Afternoon
	Chemical Storage Opportunities	**Strategies for Biomass Utilization**
	Room LA117	Room LA218
	Chair: Gustavo Bonolo de Campos Instituto Tecnológico de Aeronáutica (ITA)	Chair: Stefano Barberis RINA Consulting
15:45	**SUPEHR'19-55** **Clean Hydrogen and Ammonia large production in Paraguay by the 14 GW Itaipu hydroelectric Facility** Gustavo Riveros-Godoy, Massimo Rivarolo, Aristide Massardo and Gustavo Arevalos	**SUPEHR'19-42** **Future Directions For CHP Plants Using Biomass And Waste – Adding Production Of Vehicle Fuel And Other Chemicals** Erik Dahlquist, Awais Chaudhary Salman, Konstantinos Kyprianidis, Eva Thorin and Anders Avelin
16:15	**SUPEHR'19-82** **Thermodynamic and economic analysis of a plant for the CO2 hydrogenation for methanol production** Daria Bellotti, Matthias Dierks, Florian Moellenbruck, Klaus Goerner, Gerd Oeljeklaus and Loredana Magistri	**SUPEHR'19-21** **Numerical Investigation Of A Wood-Chip Downdraft Gasifier** Alessandro Vulpio, Nicola Casari, Mirko Morini, Michele Pinelli and Alessio Suman

PANEL SESSION DAY 2

Thursday 5th September		Morning
	Fuel Cell Gas Turbine Hybrid Systems	**Ethics in Energy**
	Room AN1	Room LA218
	Chair: Melanie Herbst DLR, Germany	Chair: Francesco Roncallo University of Genoa
09:30	**Panelists:** David Tucker, National Energy Technology Lab, *US* Michele Bozzolo, MTU Italia, a Rolls-Royce Power Systems comp., *Italy* Mario Ferrari, University of Genoa, *Italy* Matthias Metten, DLR, *Germany* **Abstract**: Hybrid systems consisting of fuel cells and a gas turbine represent a promising technology as a scalable power plant with high efficiency, fuel and load flexibility and very low emissions. In this way, hybrid systems can contribute to a highly sustainable, low-carbon and secured energy production. While a first commercial product has become available on the market, further research work is crucial to fully understand the technology and its details. Basing on their long-time experience in this field, the panelists will discuss the current status of the hybrid system technology, technological challenges, opportunities and further needed research. Related European projects: Bio-HyPP	**Panelists:** Franco Manti, University of Genoa, *Italy* Isabella Cristina, ETICLab, *Italy* Claudio Pirani, ERG S.p.a., *Italy* Thomas Lamberti, H2Boat, *Italy* **Abstract**: Sustainability is an important concept that is widely referenced and that has achieved broad support. It requires the balanced pursuit of three goods: ecological health, social equity, and economic welfare. Agenda 2030 represents the result of an extensive negotiations among United Nations member states, who share interest in the achievement of the above-mentioned basic goods. The Agenda also wants to share a new meaning of sustainability: this becomes a means to reach well defined goals with an integrated and multidisciplinary approach. For these reasons, the achievement of the 17 Goals needs a multilateral intervention starting from putting together several expertise. The session aims to underline how energy production can take part to the current worldwide sustainable migration also dealing with main challenges that a company is forced to consider. To better understand the meaning of "ethics" in this sector, Professor Manti from University of Genoa will address the main ethical questions for experts in the energy field.

	Hybrid propulsion in maritime applications
	"Auditorium Tirreno Power" – Room AN1
	Chair: Thomas Lamberti H2Boat, Italy
10:30	**Panelists** Andrea Dellacasa, Fincantieri, *Italy* Franck Verbecke, Helion, *France* Federico Silvestro, University of Genoa, *Italy* Giorgio Bertolini, RGM S.p.A., *Italy* **Abstract:** With significant reductions in emissions and fuel costs, lower maintenance costs, reduced vibration levels, less noise, and high flexibility, hybrid and electric propulsion systems are attracting more and more the attention of the ship industries, in particular after the IMO 2050 agreement on the reduction of shipping GHGs. The panel will address the maritime applications of hybrid and electric systems, assessing batteries and fuel cell technologies SOA, issues and ongoing projects.

TECHNICAL SESSION DAY 2

Thursday 5th September				Morning
	Fuel cell hybrid systems - Performance	**Fuel cell hybrid systems - Dynamics**	**Fuel cell poly-energy systems**	**Compressor performance in hybrid systems**
	"Auditorium Tirreno Power" Room AN1	Room LA218	Room LA120	Room LA117
	Chair: Gustavo Riveros ITAIPU Technology Park / Universidad Privada del Este	Chair: Valentina Zaccaria Mälardalen University	Chair: Huisheng Zhang Jiao Tong University	Chair: Lorenzo Ferrari University of Pisa
11:15	**SUPEHR'19-27** **Robust Design of a fuel cell hybrid energy system** Andrea Giugno, Luca Mantelli, Alessandra Cuneo and Alberto Traverso	**SUPEHR'19-50** **Advanced Power System Development using Cyber-Physical Components Integrated in Gas Turbine Cycle** David Tucker, Lawrence Shadle and Kenneth Bryden	**SUPEHR'19-28** **Reversible Solid Oxide Cell (Resoc) As Flexible Polygeneration Plant Integrated With CO2 Capture And Reuse** Giulio Buffo, Domenico Ferrero, Andrea Lanzini and Massimo Santarelli	**SUPEHR'19-32** **Nano- And Microstructured Riblet Surfaces For Centrifugal Industrial Compressors** Peter Adrian Leitl, Mikel Lucas Garcia de Albeniz Martinez and Andreas Flanschger
11:45	**SUPEHR'19-30** **Study on Fuel Utilization Dynamic model of a SOFC-GT Hybrid System Based on Deep Learning Technique** Jinwei Chen, Yao Chen and Huisheng Zhang	**SUPEHR'19-48** **Turbine speed control in a direct-fired fuel cell hybrid system** Paolo Pezzini, David Tucker and Kenneth Mark Bryden	**SUPEHR'19-29** **Performance Evaluation Of SOFC Cogeneration And Hybrid Heat Pump For Residential Use** Takenobu Kaida, Fumihiko Yoshiba and Takeshi Fujinawa	**SUPEHR'19-12** **Surge Prevention In Gas Turbines: An Overview Over Historical Solutions And Perspectives About The Future** Carlo Alberto Niccolini Marmont Du Haut Champ, Aristide Fausto Massardo, Mario Luigi Ferrari and Paolo Silvestri
12:15	**SUPEHR'19-37** **A Test Rig for the Experimental Investigation of a MGT/SOFC Hybrid Power Plant Based on a 3kWel Micro Gas Turbine** Martina Hohloch, Melanie Herbst, Anna Marcellan, Timo Lingstädt, Thomas Krummrein and Manfred Aigner		**SUPEHR'19-52** **High Efficiency Operational Reserve By Sofcs For The Effective Grid Integration Of Variable Renewable Energies** Fumihiko Yoshiba, Tohru Yamamoto, Hiroshi Morita, Yoshihiro Mugikura, Yuji Hanai and Isamu Watanab	**SUPEHR'19-44** **Surge Precursors from Compressor Vibro-Acoustic Analysis** Federico Reggio, Mario Luigi Ferrari, Paolo Silvestri and Aristide Fausto Massardo
12:45	**SUPEHR'19-58** **Design And Setup Of A Low Calorific SOFC Off-Gas Combustion Chamber In A Pressurized MGT Hybrid Power Plant Test Rig** Timo Lingstädt, Felix Grimm, Peter Kutne and Manfred Aigner		**SUPEHR'19-71** **Exergy Analysis Of A Biomass-Based Multi-Energy System** Mariagiovanna Minutillo, Alessandra Perna and Alessandro Sorce	**SUPEHR'19-51** **Dynamic Effect Of Cold-Air Bypass Valve For Compressor Surge Recovery And Prevention In Fuel Cell Gas Turbine Hybrid Systems** Luca Mantelli, Mario Ferrari and David Tucker

Thursday 5th September			Afternoon
	Fuel cell hybrid systems - Testing	**Hybrid Power Plants and Carbon Capture**	**Naval hybrid power generation and Liquified NG**
	"Auditorium Tirreno Power" Room AN1	Room LA117	Room LA218
	Chair: Dr. Larry Shadle National Energy Technology Laboratory (NETL)	Chair: Yutaka Watanabe Central Research Institute of Electric Power Industry (CRIEPI)	Chair: Thomas Lamberti Genoa University
15:15	**SUPEHR'19-7** **Test Rig for Emulation of Turbocharged SOFC Plants** Mario Luigi Ferrari, Matteo Pascenti and Alessio Abrassi	**SUPEHR'19-10** **Natural gas combined cycle power plant aggregated with battery: a flexible hybrid solution providing enhanced frequency and balancing services** Alessandro Giacchino and Enrico Repetto	**SUPEHR'19-17** **A design tool for the performances comparison of innovative energy systems for naval applications** Diego Rattazzi, Massimo Rivarolo, Thomas Lamberti and Loredana Magistri
15:45	**SUPEHR'19-15** **Microturbine-Based test rig for Emulation of SOFC Hybrid Systems** Mario Luigi Ferrari, Matteo Pascenti and Aristide Fausto Massardo	**SUPEHR'19-76** **Thermodynamic analysis of a gas turbine combined cycle integration with a high-temperature nuclear reactor** Marek Jaszczur and Michał Dudek	**SUPEHR'19-33** **Potential Energy Recovery From Lng Regassification In Lng-Fuelled Ships** Andrea Baccioli, Gianluca Pasini, Lorenzo Ferrari and Umberto Desideri
16:15	**SUPEHR'19-24** **Cyber-Physical System of a Solide Oxide Fuel Cell/Micro Gas Turbine Hybrid Power Plant** Anna Marcellan, Alessio Abrassi and Marius Tomberg	**SUPEHR'19-9** **Comparative analysis on applying two carbon capture methods in a novel power generation system** Ji Ho Ahn, Yeon Woo Cho and Tong Seop Kim	**SUPEHR'19-75** **Gas Turbine Prime Movers Fuelled By Lng As A Future Alternative Choice For Sustainable Power In Marine Propulsion: Current Emission Policy Assessment And Exhaust Quality Evaluation** Dario Barsi, Andrea Bono, Francesca Satta and Pietro Zunino
16:45	**SUPEHR'19-26** **Analysis of experimental results of a Pressurized Solid Oxide Fuel Cell System simulating a Hybrid Power Plant** Matthias Metten, Marius Tomberg, Marc Heddrich and K. Andreas Friedrich		**Supehr'19-95** **Design And Development Of A Laboratory For The Study Of Pemfc System For Marine Applications** Gerardo Borgogna, Enrico Speranza, Thomas Lamberti, Alberto Nicola Traverso, Loredana Magistri, Eleonora Gadducci, A. F. Massardo and Paolo Olivieri

PANEL SESSION DAY 3

Friday 6th September		Morning
	Micromachinery innovative solutions and applications	**Smart Grids and Distributed Generation**
	Room AN1	Room LA218
	Chair: Ward de Paepe Vrije Universiteit Brussels, Belgium	Chair: Renato Procopio University of Genoa, Italy
09:30	**Panelists:** Emanuele Guglielmino, Advanced Microturbines, Italy Peter Kutne, DLR, Germany Abdulnaser Sayma, City University, UK Stefano Barberis, RINA Consulting, Italy **Abstract**: The massive deployment of Renewable Energy to reduce the CO2 emissions of our energy production is putting some severe constraints on the electricity grid. Due to the highly fluctuating and unpredictable nature of the RE production from wind and solar, there is a growing need for storage in and flexibility of the power grid to keep demand and production balanced to avoid possible brown- or blackouts. Micro Gas Turbines (mGTs) in distributed power generation, typically in small-scale cogeneration applications, can provide such flexibility. Moreover, they offer great opportunities for Power-to-Fuel-to-Power applications, enabling long term storage. However, to fully embrace these opportunities, the current mGT technology has to evolve, improving cost-effectiveness and performance through innovations in different fields.	**Panelists:** Giampiero De Cubellis, Wartsila Italia, *Italy* Vishnu Sishtla, Carrier Corporation, *US* Patrick Escher, EscherTec, *Switzerland* Maurizio Verga, RSE, *Italy* **Abstract:** The panel session will focus on the integration of distributed generation within smart grids and microgrids in smart cities. The role of renewable power plants, high efficiency cogeneration and trigeneration units, including heat pumps, will be addressed in order to highlight technical, environmental and economic issues and benefits. Related European project: ENVISION

TECHNICAL SESSION DAY 3

Friday 6th September			Morning
	Microgrid applications	**Tesla turbomachinery 1**	**Micro gas turbine technologies**
	"Auditorium Tirreno Power" Room AN1	Room LA218	Room LA120
	Chair: Jafar Al Zaili London City University	Chair: Alberto Traverso University of Genova	Chair: Ward De Paepe University of Mons
10:45	**SUPEHR'19-11** **Advanced Energy Management Algorithm Based On PV And Load Forecasting For Load Smoothing And Optimized Peak Shaving Of Islanded Power Systems** Petros Iliadis, Athanasios Nesiadis, Konstantinos Atsonios, Spyridon Chapaloglou, Nikos Nikolopoulos, Panagiotis Grammelis and Stefanos Domalis	**SUPEHR'19-45** **Design And Off Design Analysis Of A Tesla Turbine Utilizing CO2 As Working Fluid** Daniele Fiaschi and Lorenzo Talluri	**SUPEHR'19-13** **Development Of A New Test Rig For The Analysis Of Hydrodynamic Bearings For Rotors Of Microgt** Carlo Alberto Niccolini Marmont Du Haut Champ, Fabrizio Stefani and Paolo Silvestri
11:15	**SUPEHR'19-23** **A Model-in-the-Loop platform for Model Predictive Controller setup in District Heating networks** Andrea De Lorenzi, Agostino Gambarotta, Mirko Morini and Costanza Saletti	**SUPEHR'19-16** **Experimental, Numerical and Theoretical Investigations of Single Gap and Multigap Tesla Turbines** Stefan Klingl, Stefan Lecheler and Michael Pfitzner	**SUPEHR'19-18** **Micro-Turbine Applied To Seismology: Towards A Power Supply Safe From Lightning** Davide Scafidi, Francesco Roncallo, Alberto Traverso, Gabriele Ferretti, Marco Pasta, Mauro Pavan, Simone Barani and Daniele Spallarossa
11:45	**SUPEHR'19-54** **Design of a sustainable polygeneration microgrid for the retrofitting of an industrial site: Ansaldo Energia case study** Fabio Cannizzaro, Stefano Bracco, Enrico Bianchi, Alessandro Giacchino and Federico Delfino	**SUPEHR'19-67** **Experimental Campaign Tests on a Tesla Micro-expander** Avinash Renuke, Alberto Traverso and Matteo Pascenti	**SUPEHR'19-43** **A Review On Combining Micro Gas Turbines With Organic Rankine Cycles** Gustavo Bonolo de Campos, Cleverson Bringhenti, Alberto Traverso and Jesuino Takachi Tomita
12:15	**SUPEHR'19-39** **Evaluating LCOE In Sustainable Microgrids For Smart City Applications** Stefano Bracco, Federico Delfino, Paola Laiolo, Luisa Pagnini and Mansueto Rossi	**SUPEHR'19-92** **Tiny Tesla Turbine Analytical Performance Validation Via Dynamic Dynamometry** Matthew J. Traum and Hope L. Weiss	**SUPEHR'19-91** **Reducing Waste Heat to the Minimum: M-Power cycle concept applied to micro Gas Turbines** Ward De Paepe, Alessio Pappa, Marina Montero Carrero, Laurent Bricteux and Francesco Contino
12:45	**SUPEHR'19-57** **Techno-Economic Analysis For The Assessment Of Heat Pump Integration In A Real Poly-Generative Energy District** Stefano Barberis, Paola Robello, Diego Rattazzi, Massimo Rivarolo, Daria Bellotti and Loredana Magistri	**SUPEHR'19-Video** **Tesla Turbomachinery International Organisation – a proposition** Matthew J. Traum	**SUPEHR'19-72** **Dynamic Simulation of Hybrid Power Micro Gas Turbine Systems** Gang Xiao, Jinli Chen, Kefa Cen and Mingjiang Ni

Friday 6th September				Afternoon
	Renewable energy	**Tesla turbomachinery 2**	**Energy harvesting technologies**	**Energy efficiency**
	"Auditorium Tirreno Power" Room AN1	Room LA218	Room LA120	Room LA117
	Chair: David Sanchez University of Seville	Chair: Anestis Kalfas Thessaloniki University	Chair: Alessandra Cuneo RINA consulting	Chair: Peter Kutne German Aerospace Center (DLR)
15:15	**SUPEHR'19-22** **Test Campaign For An Innovative Ducted Wind Turbine In Real Conditions** Enrico Valditerra, Massimo Rivarolo, Aristide F. Massardo and Marco Gualco	**SUPEHR'19-64** **Modelling Of A Tesla Turbine Gap Between The Rotor Disks** Andromachi Papagianni, Theofilos Efstathiadis and Anestis Kalfas	**SUPEHR'19-56** **Market Opportunities For Small Energy Harvesters** Alessandra Cuneo, Stefano Barberis, Paolo Silvestri and Alberto Traverso	**SUPEHR'19-14** **Derivation of Correlations Linking the Flow Rate Through a BIPVT Ventilation Gap With Operating Conditions Based on CFD Results** Panagiotis Stamatopoulos, Panagiotis Drosatos and Nikolaos Nikolopoulos
15:45	**SUPEHR'19-96** **Solar energy in Romania - the potential development for year 2030** Oana Irimia, Claudia Tomozei and Valentin Nedeff	**SUPEHR'19-34** **Improvement of Tesla Turbine Rotor Efficiency by Combining a Cascade** Koji Okamoto, Kota Miyanabe and Susumu Teramoto	**SUPEHR'19-65** **Control Strategies For Solar Façade Panels Coupled With A Heat Pump And Interacting With A District Heating Network** Diego Rattazzi, Iacopo Rossi, Loredana Magistri and S.J.F. Erich	**SUPEHR'19-66** **Tri-Power Heat Driven HVAC System** Dori Hershgal
16:15	**SUPEHR'19-73** **Sea-W.H.A.M. – A Novel Energy Harvesting Technology for Off-shore Applications** Emanuele Guglielmino, Diego Donati, Francesco Roncallo, Tommaso Reboli, Paolo Silvestri, Alberto Traverso, Federico Ceccarelli and Carlo Carraro	**SUPEHR'19-68** **Performance Assessment of Bladeless Micro Expanders Using 3D Numerical Simulation** Avinash Renuke, Alberto Traverso and Matteo Pascenti	**SUPEHR'19-79** **SHIP2FAIR – Martini & Rossi: integration of Solar Heat in Industrial Process – Preliminary evaluation** Stefano Barberis, Francesco Peccianti, Luca Castellino, Thomas Bolognesi and Alessandro Bortoletto	**SUPEHR'19-88** **Simulation Of The Rising Of Gas Bubbles In A Pilot-Scale External Loop Airlift Photobioreactor.** Patrizia Bagnerini, Matteo Neviani and Ombretta Paladino
16:45	**SUPEHR'19-86** **Techno-Economic Analysis Of Multipurpose OTEC Power Plants** Stefano Barberis, Andrea Giugno, Giacomo Sorzana, Miguel Lopes and Alberto Traverso	**SUPEHR'19-63** **Modelling Phase Change In A Novel Turbo Expander For Application To Heat Pumps And Refrigeration Cycles** Ernest Geoffrey Engelbrecht, Zoitis Giakoumis, Stathis Sidiropoulos, Alexandros Chasoglou and Ndaona Chokani	**SUPEHR'19-83** **Energy Harvesting Technology for turbocompunding automotive engines with waste-gate valve** Vittorio Usai, Silvia Marelli, Avinash Renuke and Alberto Traverso	
17:15	**SUPEHR'19-87** **An Optimisation Of The Hybrid Renewable Energy Base Systems** Marek Jaszczur, Hassan Qusay and Patryk Palej	**SUPEHR'19-69** **Two-phase flow expansion: development of an innovative test-rig for flow characterisation and CFD validation** Alberto Traverso, Federico Reggio, Paolo Silvestri, Sergio Rizzo, Geoff Engelbrecht and Alexandros Chasoglou	**SUPEHR'19-80** **Assessment Of The Thermoelectric Conversion Potential Of Low-Temperature Waste Heat From Textile Dry-Cleaning Processes** Daniele Fiaschi and Lorenzo Talluri	