

Paper index for the 2nd International Seminar on ORC Power Systems

Invited Lecturers

1. SHORT REVIEW OF THE LONG HISTORY OF ORC POWER SYSTEMS AND THEIR MODERN IMPLEMENTATION
2. THE CHOICE OF WORKING FLUID: THE MOST IMPORTANT STEP FOR A SUCCESSFUL ORGANIC RANKINE CYCLE (AND AN EFFICIENT TURBINE)

New applications: Automotive

1. SIZING MODELS AND PERFORMANCE ANALYSIS OF WASTE HEAT RECOVERY ORGANIC RANKINE CYCLES FOR HEAVY DUTY TRUCKS

New applications: Domestic CHP

1. EXPERIMENTAL INVESTIGATION OF THE ORC SYSTEM IN A COGENERATIVE DOMESTIC POWER PLANT WITH A MICROTURBINE AND AN EXPANSION VALVE
2. OPTIMIZATION OF A DOMESTIC-SCALE SOLAR ORGANIC RANKINE CYCLE SYSTEM FOR COMBINED HEATING AND POWER PROVISION IN THE UNITED KINGDOM

New applications: Process Integration

1. ORC FOR JET COOLING SECTIONS OF GALVANIZING AND ANNEALING STEEL PROCESSING LINES
2. COMBINING A THERMALLY SUPPORTED GROUND SOURCE HEAT PUMP WITH AN ORC PROCESS

New applications: Solar

- HEAT RECOVERY IN LOW-CONCENTRATION PV/THERMAL UNITS USING A LOW-TEMPERATURE SUPERCRITICAL ORGANIC RANKINE CYCLE FOR IMPROVED SYSTEM PERFORMANCE

Prototypes

1. DESIGN, MODELING AND PERFORMANCE OPTIMISATION OF A REVERSIBLE HP/ORC PROTOTYPE
2. INITIAL RESULTS AND EXPERIENCE FROM OPERATION OF LABORATORY SCALE CO₂ RANKINE CYCLE

Operational Experience

1. TESTING OF A NEW SUPERCRITICAL ORC TECHNOLOGY FOR EFFICIENT POWER GENERATION FROM GEOTHERMAL LOW TEMPERATURE RESOURCES
2. WASTE HEAT RECOVERY VIA ORGANIC RANKINE CYCLE: RESULTS OF A ERA-SME TECHNOLOGY TRANSFER PROJECT
3. OREGEN™ WASTE HEAT RECOVERY CYCLE: DEVELOPMENT AND APPLICATIONS

Simulation and design tools - System Dynamics

1. DYNAMIC MODELS FOR A HEAT-LED ORGANIC RANKINE CYCLE
2. ROBUST AND COMPUTATIONALLY EFFICIENT DYNAMIC SIMULATION OF ORC SYSTEMS: THE THERMOCYCLE MODELICA LIBRARY

3. EXPERIMENTAL STUDY AND DYNAMIC MODELING OF A WHR ORC POWER SYSTEM WITH SCREW EXPANDER

Simulation and design tools: CFD

1. 1D AND 3D TOOLS TO DESIGN SUPERCRITICAL CO₂ RADIAL COMPRESSORS: A COMPARISON
2. INVISCID STATOR/ROTOR INTERACTION OF A SINGLE STAGE HIGH EXPANSION RATIO ORC TURBINE

System Design and Optimization

1. AIR COOLER CONDENSER CHALLENGES FOR LOW GRADE WASTE HEAT ORC INSTALLATIONS IN NORTHERN CLIMATES
2. INFLUENCE OF THE CONFIGURATION OF HEAT EXCHANGERS ON THE
3. A GENERAL METHOD TO PREDICT THE PERFORMANCE OF BRAZED PLATE HEAT EXCHANGERS USED IN ORGANIC RANKINE CYCLES
4. CONCEPT OF THE GEO-BIO MICRO POWER PLANT
5. DESIGN AND DELIVER GEOTHERMAL POWER PLANTS PERFORMANCE WITH CONFIDENCE
6. HIGH EFFICIENCY ORC FOR HIGH TEMPERATURE MOLTEN SALT BOILER FOR BIOMASS APPLICATIONS
7. MODELING AND SIMULATION
8. THERMODYNAMIC ANALYSIS OF THE PARTIALLY EVAPORATING TRILATERAL CYCLE
9. TECHNICAL, ECONOMICAL, AND ENVIRONMENTAL COMPARISON USING EXERGY ABOUT UTILIZING WASTE HEAT OF A COGENERATION SYSTEM FOR COMFORT COOLING USING ORC DRIVEN CHILLERS OR HEAT PUMPS VERSUS ABSORPTION/ADSORPTION CYCLES
10. THERMO-ECONOMIC OPTIMIZATION OF SUBCRITICAL AND TRANSCRITICAL ORC SYSTEMS
11. A PROGRAM FOR FIRST ESTIMATION OF POWER OUTPUT, COSTS AND PROFIT OF GEOTHERMAL HEAT AND POWER PLANTS
12. ENERGETIC AND EXERGETIC ASSESSMENT OF WASTE HEAT RECOVERY SYSTEMS IN THE GLASS INDUSTRY
13. MAKING SHIPPING GREENER: ORC MODELLING IN CHALLENGING ENVIRONMENTS
14. EVALUATION OF PINCH POINT SMOOTHING AS A MEANS TO ENHANCE THE POWER PRODUCED IN ORC UNITS WITH VARIABLE TEMPERATURE HEAT SOURCE

Volumetric expanders

1. MODELLING OF SCROLL MACHINES: GEOMETRIC, THERMODYNAMICS AND CFD METHODS
2. NON-CONSTANT WALL THICKNESS SCROLL EXPANDER INVESTIGATION FOR A MICRO SOLAR ORC PLANT
3. PRESSURE INDICATION OF EXPANSION DEVICES
4. EXPERIMENTAL STUDY ON THE PERFORMANCE OF SINGLE SCREW EXPANDERS WITH 195 MM DIAMETER SCREW
5. AN EXPERIMENTAL ANALYSIS OF A LOW-LOSS RECIPROCATING PISTON EXPANDER FOR USE IN SMALL-SCALE ORGANIC RANKINE CYCLES
6. GEOMETRIC, THERMODYNAMIC AND CFD ANALYSES OF A REAL SCROLL EXPANDER FOR MICRO ORC APPLICATIONS

Working fluids

1. ULTRA-LOW GWP WORKING FLUID FOR ORGANIC RANKINE CYCLES
2. IDENTIFICATION AND TEST OF LOW GLOBAL WARMING POTENTIAL ALTERNATIVES TO HFC-245FA IN ORGANIC RANKINE CYCLES
3. AN ASSESSMENT OF WORKING-FLUID MIXTURES IN ORGANIC RANKINE CYCLES FOR WASTE-HEAT RECOVERY USING SAFT-VR

Turbo expanders

1. NUMERICAL STUDY OF MULTISTAGE TRANSCRITICAL ORC AXIAL TURBINES
2. DEVELOPMENT OF A 300 KW INTEGRATED, AXIAL TURBINE AND GENERATOR FOR ORC APPLICATIONS
3. CENTRIFUGAL TURBINES FOR MINI-ORC POWER SYSTEMS
4. 2D UNSTEADY RANS SIMULATIONS OF AN ORGANIC VAPOR PARTIAL ADMISSION TURBINE
5. CENTRIFUGAL TURBINES FOR MINI-ORC POWER SYSTEMS
6. AERODYNAMICS OF CENTRIFUGAL TURBINE CASCADES
7. DESIGN OF A PARTIAL ADMISSION IMPULSE TURBINE FOR AN AUTOMOTIVE ORC-APPLICATION
8. DEVELOPMENT AND OPERATION OF A HIGH TEMPERATURE HIGH SPEED ORGANIC RANKINE CYCLE SYSTEM
9. THE RADIAL OUTFLOW TURBINE TECHNOLOGY: IMPACT ON THE CYCLE THERMODYNAMICS AND MACHINERY FLUID- AND ROTORDYNAMIC FEATURES

Experiments

1. FLEXIBLE ASYMMETRIC SCHOCK TUBE (FAST) SET-UP: STATUS AND FIRST EXPERIENCES
2. EXPERIMENTAL INVESTIGATIONS OF HEAT TRANSFER CHARACTERISTICS AND THERMAL STABILITY OF SILOXANES
3. START-UP OF A TEST RIG FOR ORGANIC VAPORS