

# Innova MicroSOLAR Project

## Deliverable 8.3

### List of published journal and conference papers



## REPORT CONTENT

	<b>SUMMARY.....</b>	<b>3</b>
<b>1</b>	<b>PUBLISHED JOURNAL PAPERS.....</b>	<b>4</b>
<b>2</b>	<b>PUBLISHED CONFERENCE PAPERS .....</b>	<b>6</b>

## **SUMMARY**

During the lifetime of the Project, 19 journal and 18 conference papers were published to disseminate results obtained in Project activities.

# 1. PUBLISHED JOURNAL PAPERS

## *From individual partners*

- (a) Luca Cioccolanti, Roberto Tascioni, Alessia Arteconi. Simulation analysis of an innovative micro-solar 2kWe Organic Rankine Cycle plant for residential applications. *Energy Procedia* 142 (2017) 1629-1634 <https://doi.org/10.1016/j.egypro.2017.12.541>
- (b) José Miguel Maldonado, Margalida Fullana, Marc Martin, Arán Solé, Ángel G. Fernández, Alvaro de Gracia, Luisa F. Cabeza. Phase Change Material Selection for Thermal Energy Storage at High Temperature Range between 210°C and 270°C. *Energies* 4 (2018) 861. <https://doi.org/10.3390/en11040861>
- (c) José Miguel Maldonado, Ángel G. Fernández, Luisa F. Cabeza. Corrosion Assessment of Myo-Inositol Sugar Alcohol as a Phase Change Material in Storage Systems Connected to Fresnel Solar Plants. *Molecules* 24 (2019) 1383. <https://doi.org/10.3390/molecules24071383>
- (d) Mauro Villarini, Roberto Tascioni, Alessia Arteconi, Luca Cioccolanti. Influence of the incident radiation on the energy performance of two small-scale solar Organic Rankine Cycle trigenerative systems: A simulation analysis. *Applied Energy* 242 (2019) 1176-1188. <https://doi.org/10.1016/j.apenergy.2019.03.066>
- (e) Alessia Arteconi, Luca Del Zotto, Roberto Tascioni, Luca Cioccolanti. Modelling system integration of a micro solar Organic Rankine Cycle plant into a residential building. *Applied Energy* 251 (2019) 113408. <https://doi.org/10.1016/j.apenergy.2019.113408>
- (f) Luca Cioccolanti, Roberto Tascioni, Alessia Arteconi. Mathematical modelling of operation modes and performance evaluation of an innovative small-scale concentrated solar organic Rankine cycle plant. *Applied Energy* 221 (2018) 464-476. <https://doi.org/10.1016/j.apenergy.2018.03.189>
- (g) André-Charles Mintsa Do Ango, Gaël Levêque, Norman Holaind, Gabriel Henry, Arthur Leroux. Low temperature and power solar energy conversion for domestic use. *Energy Procedia* 161 (2019) 454-463. <https://doi.org/10.1016/j.egypro.2019.02.072>
- (h) Roberto Tascioni, Alessia Arteconi, Luca Del Zotto, Luca Cioccolanti. Fuzzy Logic Energy Management Strategy of a Multiple Latent Heat Thermal Storage in a Small-Scale Concentrated Solar Power Plant. *Energies* 13 (2020) 2733. <https://doi.org/10.3390/en13112733>
- (i) Roberto Tascioni, Luca Cioccolanti, Luca Del Zotto, Emanuele Habib. Numerical Investigation of Pipelines Modeling in Small-Scale Concentrated Solar Combined Heat and Power Plants. *Energies* 13 (2020) 429. <https://doi.org/10.3390/en13020429>
- (j) Luca Cioccolanti, Roberto Tascioni, Mattero Pirro, Alessio Arteconi. Development of a hardware-in-the-loop simulator for small-scale concentrated solar combined heat and power system. *Energy Conversion and Management: X* 8 (2020). <https://doi.org/10.1016/j.ecmx.2020.100056>
- (k) Cioccolanti L., De Grandis S., Tascioni R., Pirro M., Freddi A. (2021). Development of a fuzzy logic controller for small-scale solar organic rankine cycle cogeneration plants. *APPLIED SCIENCES*, vol. 11, ISSN: 2076-3417. <https://doi.org/10.3390/app11125491>
- (l) Tascioni R., Cioccolanti L., Pili P., Habib E. (2022). Preliminary estimation of the receiver tube wall temperature and the performance of CSP plants in off design-conditions by means of a simplified dynamic model. *ENERGY CONVERSION AND MANAGEMENT*, vol. 257, ISSN: 0196-8904. <https://doi.org/10.1016/j.enconman.2022.115379>

***In a collaboration between several partners***

- (a) Alessia Arteconi, Luca Del Zotto, Roberto Tascioni, Khamid Mahkamov, Chris Underwood, Luisa F. Cabeza, Alvaro de Gracia, Piero Pili, Andre Charles Mintsa, Carlo Maria Bartolini, Toni Gimbernat, Teresa Botargues, Elvedin Halimic, Lucca Cioccolanti. Simulation analysis of an innovative micro-solar 2kWe Organic Rankine Cycle plant coupled with a multi-apartments building for domestic hot water supply. *Energy Procedia* 158 (2019) 2225-2230. <https://doi.org/10.1016/j.egypro.2019.01.168>
- (b) Alessia Arteconi, Luca Del Zotto, Roberto Tascioni, Khamid Mahkamov, Chris Underwood, Luisa F. Cabeza, Jose Miguel Maldonado, Roberto Manca, André C. Mintsa, Carlo M. Bartolini, Toni Gimbernat, Teresa Botargues, Elvedin Halimic, Luca Cioccolanti. Multi-Country Analysis on Energy Savings in Buildings by Means of a Micro-Solar Organic Rankine Cycle System: A Simulation Study. *Environments* 5 (2018) 119. <https://doi.org/10.3390/environments5110119>
- (c) Julià Coma, José Miguel Maldonado, Alvaro de Gracia, Toni Gimbernat, Teresa Botargues, Luisa F. Cabeza. Comparative Analysis of Energy Demand and CO<sub>2</sub> Emissions on Different Typologies of Residential Buildings in Europe. *Energies* 12 (2019) 2436. <https://doi.org/10.3390/en12122436>
- (d) Sol-Carolina Costa, Khamid Mahkamov, Murat Kenisarin, Mohammad Ismail, Kevin Lynn, Elvedin Halimic, David Mullen. Solar Salt Latent Heat Thermal Storage for a Small Solar Organic Rankine Cycle Plant. *J. Energy Resour. Technol.* Mar 2020, 142(3): 031203 (9 pages). <https://doi.org/10.1115/1.4044557>
- (e) Alessia Arteconi, Francesco Ferracuti, Roberto Tascioni, Kahmid Mahkamov, Murat Kenisarin, Carolina Costa, Luisa F. Cabeza, Alvaro de Gracia, Elvedin Halimic, Dvaid Mullen, Kevin Lynn, Lucca Cioccolanti. Black box modelling of a latent heat thermal energy storage system coupled with heat pipes. *IOP Conf. Ser.: Mater. Sci. Eng.* 1139 012010. <https://doi.org/10.1088/1757-899X/1139/1/012010>
- (f) Roberto Tascioni, Matteo Pirro, Alessia Arteconi, Luca Del Zotto, Carlo M. Bartolini, Khamid Mahkamov, Irina Mahkamova, Luisa F. Cabeza, Alvaro de Gracia, Piero Pili, André C. Mintsa, Toni Gimbernat, Teresa Botargues, David Mullen, Luca Cioccolanti. Prediction of the time constant of small-scale concentrated solar CHP plants. *E3S Web Conf.*, 238 (2021) 01001. <https://doi.org/10.1051/e3sconf/202123801001>
- (g) Luca Cioccolanti, Roberto Tascioni, Ramin Moradi, Matteo Pirro, Carlo Maria Bartolini, Irina Makhkamova, Khamid Mahkamov, Luisa F Cabeza, Alvaro De Gracia, Piero Pili, André C Mintsa, David Mullen. Development of a smart control unit for small-scale concentrated solar combined heat and power systems for residential applications. *e-Prime-Advances in Electrical Engineering, Electronics and Energy*, 2 (2022) 100040. <https://doi.org/10.1016/j.prime.2022.100040>

## 2. PUBLISHED CONFERENCE PAPERS

### Conference papers

#### *From individual partners*

- (a) Luca Cioccolanti, Roberto Tascioni, Alessa Arteconi. Simulation analysis of an innovative micro-solar 2kWe Organic Rankine Cycle plant for residential applications. International Conference on Applied Energy (ICAE), Cardiff, U.K (2017) August 21-24. ISBN: 18766102. <https://www.proceedings.com/content/038/038446webtoc.pdf>



- (b) Mauro Villarini, Alessia Arteconi, Roberto Tascioni, Enrico Bocci, Luca Cioccolanti. Modelling of two innovative small-scale solar Organic Rankine Cycle trigeneration systems and comparison of their thermodynamic performance (SDEWES2018-0199). Sustainable Development of Energy, Water and Environment Systems (13th SDEWES). Palermo, Italy (2019) September 30 - October 4. <https://www.palermo2018.sdewes.org/programme.php>
- (c) André-Charles Minsta Do Anjo, Gaël Levêque, Norman Holaind, Gabriel Henry, Arthur Leroux. Low temperature and power solar energy conversion for domestic use. 2<sup>nd</sup> International Conference on Sustainable Energy and Resource Use in Food Chains including Workshop on Energy Recovery Conversion and Management (2<sup>nd</sup> ICSEF 2018). Paphos, Cyprus (2018) October 17-19. <https://www.proceedings.com/content/053/053380webtoc.pdf>
- (d) Luisa F. Cabeza, Gabriel Zsembinszki, Alvaro de Gracia, Ángel G. Fernández, Josep Argelich. Contribución de proyectos europeos a la reducción del consumo de energía en aplicaciones en edificios y en la industria. II Simposio de la Red Iberoamericana de Investigación, Desarrollo y Transferencia para la Aplicación de Energías Renovables y Cuidado del Ambiente (II Simposio RibERA 2019). Cayo Santa María, Cuba (2019), June 23-30. <https://redibera.org/wp-content/uploads/2020/04/Encuentro-2019-Libro-de-resumenes-web.pdf>



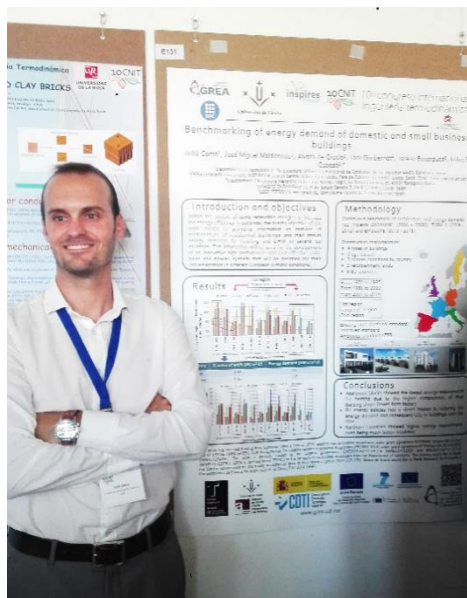
- (e) Thomas C. Werner, Yuying Yan, David Mullen, Elvedin Halimic. Heat pipe for applications above 280 °C. 16<sup>th</sup> UK Heat Transfer Conference 2019 (UKHTC2019). Nottingham, UK (2019) September 8-9. <https://www.nottingham.ac.uk/conference/fac-eng/ukhtc2019/documents/ukhtc2019-programme-with-paper-details.pdf>

***In a collaboration between several partners***

- (a) Julià Coma, José M. Maldonado, Alvaro de Gracia, Toni Gimbernat, Teresa Botargues, Luisa F. Cabeza. Benchmarking of energy demand of domestic and small business buildings. Building Integrated Renewable Energy Systems (BIRES), Dublin, Ireland (2017) March 6-9. ISBN: 978-9963-697-23-6. <https://repositori.udl.cat/handle/10459.1/69693>



- (b) Julià Coma, José M. Maldonado, Alvaro de Gracia, Toni Gimbernat, Teresa Botargues, Luisa F. Cabeza. Benchmarking of energy demand of domestic and small business buildings. International Congress on Engineering Thermodynamics (10CNIT) Lleida, Spain (2017) June 28-30. <http://www.10cnit.udl.cat/docs/Full%20Program%20v12.pdf>



- (c) Julià Coma, José M. Maldonado, Alvaro de Gracia, Toni Gimbernat, Teresa Botargues, Luisa F. Cabeza. Comparative analysis of energy demand and CO2 emissions of residential buildings. Solar World Congress (ISES-SWC), Abu Dhabi, UAE (2017) October 30-31 and November 1-2. <https://proceedings.ises.org/swc2017/swc2017-proceedings.pdf>

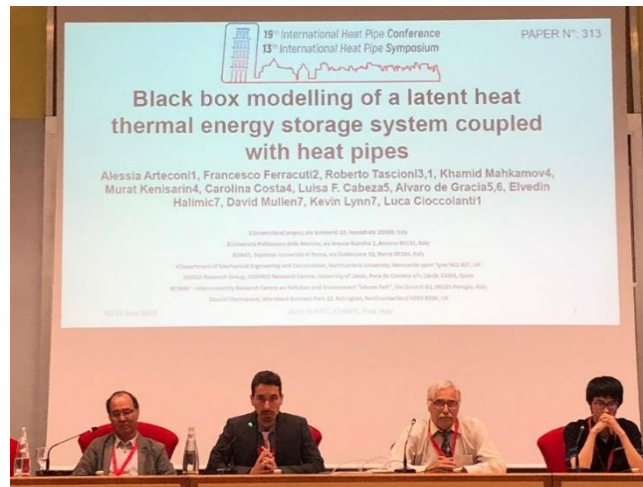


- (d) Julià Coma, José M. Maldonado, Alvaro de Gracia, Toni Gimbernat, Teresa Botargues, Luisa F. Cabeza. Benchmarking of energy demand of residential buildings. 14th International Conference on Energy Storage (EnerSTOCK), Adana, Turkey (2018) April 25-28. <https://iea-es.org/events/enerstock-2018/>





- (e) Alessia Arteconi, Francesco Ferracuti, Roberto Tascioni, Khamid Mahkamov, Murat Kenisarin, Carolina Costa, Luisa F. Cabeza, Alvaro de Gracia, Elvedin Halimic, David Mullen, Kevin Lynn, Luca Cioccolanti. Box Modelling of a Latent Heat Thermal Energy Storage System Coupled with Heat Pipes. Heat Pipe Conference and Heat Pipe Symposium (IHPC-IHPS). Pisa, Italy (2018) June 10-14 (<http://www.heatpipepisa.it/programme.html>)



- (f) José Miguel Maldonado, Alvaro de Gracia, Khamid Mahkamov, Carolina Costa, Murat Kenisarin, Piero Pili, Roberto Manca, Arthur Leroux, Andre Charles Mintsa, Carlo Maria Bartolini, Matteo Pirro, Kevin Lynn, David Mullen, Elvedin Halimic, Luisa F. Cabeza. Ensayos preliminares de una microturbina de ciclo orgánico de Rankine alimentada por un campo solar de concentración tipo Fresnel lineal. Congreso Ibérico y Congreso Iberoamericano de Energía Solar (CIES). Madrid, Spain (2018) June 20-22. <https://www.cies-congreso.org/67569/detail/xviii-congreso-iberico-y-xiv-congreso-iberoamericano-de-energia-solar.html>
- (g) Sol-Carolina Costa, Khamid Mahkamov, Murat Kenisarin, Mohammad Ismail, Elvedin Halimic, David Mullen, Kevin Lynn, Thomas Werner. Experimental and Numerical Study on Melting of Solar Salt in a Finned Metallic Container. Paper No: IMECE2018-88072, V06BT08A055; 11 pages (<https://doi.org/10.1115/IMECE2018-88072> ). ASME 2018 International Mechanical Engineering Congress and Exposition. November 9–15, 2018, Pittsburgh, Pennsylvania, USA.
- (h) Khamid Mahkamov, Piero Pili, Roberto Manca, Arthur Leroux, Andre Charles Mintsa, Kevin Lynn, David Mullen, Elvedin Halimic, Carlo Maria Bartolini, Matteo Pirro, Sol-Carolina Costa, Luisa F. Cabeza, Alvaro de Gracia Cuesta, Murat Kenisarin, Irina Makhkamova. Development of a small solar thermal power plant for heat and power supply to domestic and small business buildings. Paper No: POWER2018-7336, V001T06A014; 10 pages (<https://doi.org/10.1115/POWER2018-7336>). ASME 2018 Power Conference collocated with the ASME 2018 12th International Conference on Energy Sustainability and the ASME 2018 Nuclear Forum. June 24–28, 2018, Lake Buena Vista, Florida, USA.

- (i) Alessia Arteconi, Luca Del Zotto, Roberto Tascioni, Khamid Mahkamov, Chris Underwood, Luisa F. Cabeza, Alvaro de Gracia, Piero Pili, Andre Charles Mintsa, Carlo Maria Bartolini, Toni Gimbernat, Teresa Botargues, Elvedin Halimic, Lucca Cioccolanti. Simulation analysis of an innovative micro-solar 2kWe Organic Rankine Cycle plant for residential applications. 10<sup>th</sup> International Conference on Applied Energy (ICAE). Hong Kong, China (2019) August 22-25. [http://www.applied-energy.org/icae2018/wp-content/uploads/2018/02/ICAE2018\\_final\\_Program.pdf](http://www.applied-energy.org/icae2018/wp-content/uploads/2018/02/ICAE2018_final_Program.pdf)



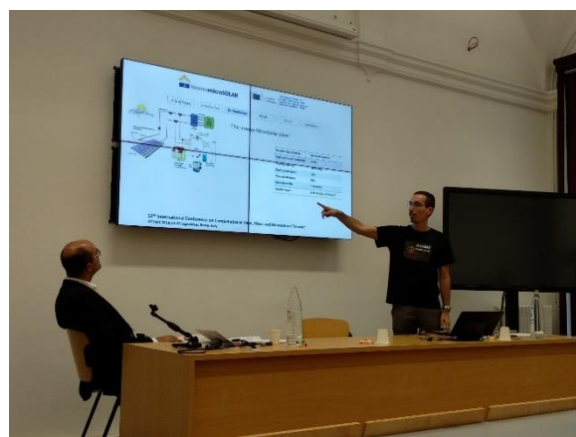
- (j) José Miguel Maldonado, Alvaro de Gracia, Khamid Mahkamov, Carolina Costa, Murat Kenisarin, Piero Pili, Roberto Manca, Arthur Leroux, Andre Charles Mintsa, Carlo Maria Bartolini, Matteo Pirro, Kevin Lynn, David Mullen, Elvedin Halimic, Lucca Cioccolanti, Alessia Arteconi, Toni Gimbernat, Teresa Botargues, Luisa F. Cabeza. Innovative Concentrated Solar Micro Organic Rankine Cycle Power Plant For Buildings. 14<sup>th</sup> International Renewable Energy Storage Conference (IRES 2020). Düsseldorf, Germany (2019) March 10-12. (<https://www.proceedings.com/content/058/058789webtoc.pdf>).
- (k) José Miguel Maldonado, Alvaro de Gracia, Khamid Mahkamov, Carolina Costa, Murat Kenisarin, Piero Pili, Roberto Manca, Arthur Leroux, Andre Charles Mintsa, Carlo Maria Bartolini, Matteo Pirro, Kevin Lynn, David Mullen, Elvedin Halimic, Lucca Cioccolanti, Alessia Arteconi, Toni Gimbernat, Teresa Botargues, Luisa F. Cabeza. Innovative concentrated solar micro organic Rankine cycle plant system for residential buildings. Advances in thermal energy storage (Eurotherm Seminar 2019). Lleida, Spain (2019) May 15-17. [https://fundacio.udl.cat/wp-content/uploads/Eurotherm-Seminar-112\\_Program\\_v6.pdf](https://fundacio.udl.cat/wp-content/uploads/Eurotherm-Seminar-112_Program_v6.pdf); <http://hdl.handle.net/10459.1/71417>



- (l) Roberto Tascioni, Luca Cioccolanti, Luca del Zotto, Khamdi Mahkamov, Murat Kenisarin, Carolina Costa, Luisa F. Cabeza, Alvaro de Gracia, Jose Miguel Maldonado, Elvedin Hamilic, David Mullen, Kevin Lynn, Alessia Arteconi. Numerical investigation of the smart energy management of modular latent heat thermal storage on the performance of a micro-solar power plant. 32<sup>th</sup> International Conference on Efficiency, Cost, Optimization, Simulation and Environmental Impact of Energy Systems (ECOS 2019). Wroclaw, Poland (2019) June 23-28. ISBN: 978-836150651-5. <https://www.s-conferences.eu/ecos2019#>



- (m) Sol-Carolina Costa, Mohammad Ismail, Murat Kenisarin, Khamid Mahkamov, David Mullen, Elvedin Halimic, Kevin Lynn. Comparative study of two types of medium temperature phase change materials. 8th International Conference on Energy and Sustainability (Energy and Sustainability 2019). Coimbra, Portugal (2019) July 3-5.. <https://www.wessex.ac.uk/conferences/2019/energy-and-sustainability-2019>
- (n) Luca Cioccolanti, Roberto Tascioni, Matteo Pirro, Carlo Maria Bartolini, Alessia Arteconi. Development of a smart simulator for a small scale solar CHP system in urban environment. The 11th International Conference on Applied Energy (ICAE 2019). Västerås, Sweden (2019) August 12-15. <https://applied-energy.org/icae2019/wp-content/uploads/2019/08/18.pdf>
- (o) Roberto Tascioni, Alessia Arteconi, Luca Del Zotto, Emanuele Habiba, Enrico Bocci, Ramin Moradia, Khamid Mahkamov, Carolina Costa, Luisa F. Cabeza, Alvaro de Gracia, Piero Pili, André C. Mintsa, Matteo Pirro, Toni Gimbernat, Teresa Botargues, Elvedin Halimick, Luca Cioccolanti. Numerical investigation of the tube modeling on solar combined heating and power plant. XII International Conference on Computational Heat, Mass and Momentum Transfer (ICCHMT 2019). Rome, Italy, – June 2019. <https://www.proceedings.com/51736.html>
- (p) Roberto Tascionia, Luca Cioccolanti, Piero Pilic, Roberto Manca, Emanuele Habiba. One dimensional thermal model of receiver tube for linear Fresnel reflectors. XII International Conference on Computational Heat, Mass and Momentum Transfer (ICCHMT 2019). Rome, Italy – June 2019. <https://www.proceedings.com/51736.html>



- (q) Gaël Leveque, André-Charles Mintsa Do Ango, Alessia Arteconi, Luca Cioccolanti, Roberto Tascioni, Khamid Mahkamov, Chris Underwood, Luisa F. Cabeza, Alvaro de Gracia, Roberto Manca, Carlo M. Bartolini, Toni Gimbernat, Teresa Botargues, Elvedin Halmic. ORC conversion of solar heat to electricity and low temperature heat for domestic use. 5<sup>th</sup> International Seminar on ORC Power Systems. Athens, Greece (2019) September 9-11. <https://www.orc2019.com/>