# ASTRI Journal publications

**2012 - 2022 as at July 2020**

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| Research Area | Publication Title + Authors + Full Citation + DOI |
|---|---|
| **P22**<br>**PCM storage** | Review on storage materials and thermal performance enhancement techniques for high temperature phase change thermal storage systems.<br>Ming Liu, Wasim Saman, Frank Bruno.<br>(2012) Renewable and Sustainable Energy Reviews 16 May (2012) 2118– 2132. DOI: 10.1016/j.rser.2012.01.020 |
| **P31**<br>**sC02 systems - Power blocks** | Dynamic characteristics of a direct-heated supercritical carbon-dioxide Brayton cycle in a solar thermal power plant.<br>Singh, R., Miller, S.A., Rowlands, A.S., Jacobs, P.A.<br>(2013) Energy 50, February (2013) 194-204. http://dx.doi.org/10.1016/j.energy.2012.11.029 |
| **P31**<br>**sC02 systems - Power blocks** | Effects of relative volume-ratios on dynamic performance of a direct-heated supercritical carbon-dioxide closed Brayton cycle in a solar-thermal power plant.<br>Singh, R., Miller, S.A., Rowlands, A.S.<br>(2013) Energy 55 April 1025-1032. http://dx.doi.org/10.1016/j.energy.2013.03.049 |
| **P11**<br>**Receiver Scoping** | Heliostat cost reduction – where to now?<br>Joe Coventry, John Pye<br>(2014) Energy Procedia. http://dx.doi.org/10.1016/j.egypro.2014.03.007 |
| **P31**<br>**sC02 systems - Power blocks** | Supercritical CO2 cycles offer experience curve opportunity to CST in remote area markets.<br>Hal Gurgenci<br>(2014) Energy Procedia. http://dx.doi.org/10.1016/j.egypro.2014.03.125 |
| **P31**<br>**sC02 systems - Power blocks** | Influence of ambient conditions and water flow on the performance of pre-cooled natural draft dry cooling towers.<br>Suoying He, Zhiqiang Guan, Hal Gurgenci, Ingo Jahn, Yuanshen Lu, Abdullah M. Alkhedhair<br>(2014) Applied Thermal Engineering, Volume 66, Issues 1–2, May, Pages 621-631, ISSN 1359-4311. http://dx.doi.org/10.1016/j.applthermaleng.2014.02.070 |
| **P31**<br>**sC02 systems - Power blocks** | Experimental study of film media used for evaporative pre-cooling of air.<br>Suoying He, Zhiqiang Guan, Hal Gurgenci, Kamel Hooman, Yuanshen Lu, Abdullah M. Alkhedhair<br>(2014) Energy Conversion and Management, Volume 87, November), Pages 874-884, ISSN 0196-8904. http://dx.doi.org/10.1016/j.enconman.2014.07.084 |
| **P31**<br>**sC02 systems - Power blocks** | Theoretical and experimental studies on a solid containing water droplet.<br>M.H. Sadafi, I. Jahn, A.B. Stilgoe, K. Hooman<br>(2014) International Journal of Heat and Mass Transfer, Volume 78, November, 25-33, ISSN 0017-9310. http://dx.doi.org/10.1016/j.ijheatmasstransfer.2014.06.064 |
| **P31**<br>**sC02 systems - Power blocks** | The influence of windbreak wall orientation on the cooling performance of small natural draft dry cooling towers.<br>Lu, Y.S.,Gurgenci, H., Guan, Z., and He, S<br>(2014) International Journal of Heat and Mass Transfer, Volume 79, December 2014, 1059–1069. http://dx.doi.org/10.1016/j.ijheatmasstransfer.2014.09.012 |
| **P01**<br>**OEM** | Impact of Cost Uncertainties and Solar Data Variations on the Economics of Central Receiver Solar Power Plants: An Australian Perspective.<br>Meybodi M.A, Beath A.C.<br>(2016) Renewable Energy 93 510-524. http://dx.doi.org/10.1016/j.renene.2016.03.016 |
| **P01**<br>**OEM** | Current and Future Status of Concentrating Solar Power in Australia.<br>Hinkley JT., Hayward JA., Beath AC., Brinsmead TS., Meybodi MA., Lovegrove KM.<br>(2015) J. Japan Institute of Energy, 95, 227-234. DOI |

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| **P11**<br>**Receiver Scoping** | Fourier sampling of sun path for applications in solar energy.<br>V. Grigoriev, M. Blanco, C. Corsi<br>(2015) American Institute of Physics. http://dx.doi.org/10.1063/1.4949032 |
| **P11**<br>**Receiver Scoping** | Effect of heliostat design wind speed on the levelised cost of electricity from concentrating solar thermal power tower plants.<br>Emes, M. J., M. Arjomandi and G. J. Nathan<br>(2015) Solar Energy 115(0): 441-451. http://dx.doi.org/10.1016/j.solener.2015.02.047 |
| **P12**<br>**Heliostat scoping** | A review of Sodium receiver technologies for central receiver solar power plants.<br>J. Coventry, C. Andraka, J. Pye, M. Blanco, J. Fisher.<br>(2015) Solar Energy, 122, 749–762. http://dx.doi.org/10.1016/j.solener.2015.09.023 |
| **P12**<br>**Heliostat scoping** | A Novel Solar Expanding-Vortex Particle Reactor: Influence of Vortex Structure on Particle Residence Times and Trajectories.<br>Alfonso Chinnici, Maziar Arjomandi, Zhao Feng Tian, Zhao Lu, Graham Jerrold Natha<br>(2015) Solar Energy - Volume 122, December 2015, Pages 58–75. http://dx.doi.org/10.1016/j.solener.2015.08.017 |
| **P22**<br>**PCM storage** | Impact of the heat transfer fluid in a flat plate phase change thermal storage unit for concentrated solar tower plants.<br>Ming Liu, Martin Belusko, N.H. Steven Tay, Frank Bruno.<br>(2015) Solar Energy, Volume 101, March (2014), Pages 220-231, ISSN 0038-092X. http://dx.doi.org/10.1016/j.solener.2013.12.030 |
| **P22**<br>**PCM storage** | Review on shell materials used in the encapsulation of phase change materials for high temperature thermal energy storage.<br>Rhys Jacob, Frank Bruno<br>(2015) Renewable and Sustainable Energy Reviews 48(0): 79-87. https://doi.org/10.1016/j.rser.2015.03.038 |
| **P22**<br>**PCM storage** | Determination of thermo-physical properties and stability testing of high-temperature phase-change materials for CSP applications.<br>Liu, M., J. C. Gomez, C. S. Turchi, N. H. S. Tay, W. Saman and F. Bruno.<br>(2015) Solar Energy Materials and Solar Cells 139(0): 81-87. http://dx.doi.org/10.1016/j.solmat.2015.03.014 |
| **P22**<br>**PCM storage** | Investigation of Cascaded Shell and Tube Latent Heat Storage Systems for Solar Tower Power Plants.<br>Liu M., Tay N.H.S., Belusko M., Bruno F.<br>(2015) Energy Procedia, 69, pp 913-924, 2015. http://dx.doi.org/10.1016/j.egypro.2015.03.175 |
| **P22**<br>**PCM storage** | Effective tube-in-tank PCM thermal storage for CSP applications, Part 1: Impact of tube configuration on discharging effectiveness.<br>Belusko M, Tay N.H.S., Liu M., Bruno F.<br>(2015) Solar Energy. http://dx.doi.org/10.1016/j.solener.2015.09.042 |
| **P22**<br>**PCM storage** | Effective tube-in-tank PCM thermal storage for CSP applications, Part 2: Parametric assessment and impact of latent fraction.<br>Belusko M, Tay N.H.S., Liu M., Bruno F.<br>(2015) Solar Energy. http://dx.doi.org/10.1016/j.solener.2015.09.034 |
| **P22**<br>**PCM storage** | Review on concentrating solar power plants and new developments in high temperature thermal energy storage technologies.<br>Liu, M., Steven Tay, N.H., Bell, S., Belusko, M., Jacob, R., Will, G., Saman, W., Bruno, F.<br>(2015) Renewable and Sustainable Energy Reviews, 53, pp. 1411-1432. Cited 1 time. http://dx.doi.org/10.1016/j.rser.2015.09.026 |

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| **P22**<br>**PCM storage** | Effective tube-in-tank PCM thermal storage for CSP applications, Part 2: Parametric assessment and impact of latent fraction.<br>M Belusko, NHS Tay, M Liu, F Bruno.<br>(2015) Solar Energy, Volume 139, 1 December 2016, Pages 744-756. https://doi.org/10.1016/j.solener.2015.09.034 |
| **P22**<br>**PCM storage** | Effective tube-in-tank PCM thermal storage for CSP applications, Part 1: Impact of tube configuration on discharging effectiveness.<br>M Belusko, NHS Tay, M Liu, F Bruno.<br>(2015) Solar Energy, Volume 139, 1 December 2016, Pages 733-743. https://doi.org/10.1016/j.solener.2015.09.042 |
| **P31**<br>**sC02 systems - Power blocks** | Experimental study of the application of two trickle media for inlet air pre-cooling of natural draft dry cooling towers.<br>Suoying He, Zhiqiang Guan, Hal Gurgenci, Kamel Hooman, Yuanshen Lu, Abdullah M. Alkhedhair.<br>(2015) Energy Conversion and Management, Volume 89, 1 January 2015, 644-654, ISSN 0196-8904. http://dx.doi.org/10.1016/j.enconman.2014.10.031 |
| **P31**<br>**sC02 systems - Power blocks** | A theoretical model with experimental verification for heat and mass transfer of saline water droplets.<br>M.H. Sadafi, I. Jahn, A.B. Stilgoe, K. Hooman.<br>(2015) International Journal of Heat and Mass Transfer, Volume 81, February, p1-9, ISSN 0017-9310. http://dx.doi.org/10.1016/j.ijheatmasstransfer.2014.10.005 |
| **P31**<br>**sC02 systems - Power blocks** | Water Spray For Pre-Cooling Of Inlet Air For Natural Draft Dry Cooling Towers – Experimental Study.<br>(2015) Abdullah Alkhedhair, Zhiqiang Guan, Ingo Jahn, Hal Gurgenci, Suoying He. International Journal of Thermal Sciences.<br>http://dx.doi.org/10.1016/j.ijthermalsci.2014.11.029 |
| **P31**<br>**sC02 systems - Power blocks** | Cooling performance of solid containing water for spray assisted dry cooling towers.<br>Sadafi, M. H., I. Jahn and K. Hooman.<br>(2015) Energy Conversion and Management 91(0): 158-167. http://dx.doi.org/10.1016/j.enconman.2014.12.005 |
| **P31**<br>**sC02 systems - Power blocks** | A review of wetted media with potential application in the pre-cooling of natural draft dry cooling towers.<br>He, S., H. Gurgenci, Z. Guan, X. Huang and M. Lucas.<br>(2015) Renewable and Sustainable Energy Reviews 44(0): 407-422. http://dx.doi.org/10.1016/j.rser.2014.12.037 |
| **P31**<br>**sC02 systems - Power blocks** | Experimental study of crosswind effects on the performance of small cylindrical natural draft dry cooling towers.<br>Lu, Y., Z. Guan, H. Gurgenci, K. Hooman, S. He and D. Bharathan.<br>(2015) Energy Conversion and Management 91(0): 238-248. http://dx.doi.org/10.1016/j.enconman.2014.12.018 |
| **P31**<br>**sC02 systems - Power blocks** | Numerical simulation of water spray in natural draft dry cooling towers with a new nozzle representation approach.<br>Abdullah Alkhedhair, Ingo Jahn, Hal Gurgenci, Zhiqiang Guan, Suoying He, Yuanshen Lu.<br>(2015) Applied Thermal Engineering, Volume 98, Pages 924-935. http://dx.doi.org/10.1016/j.applthermaleng.2015.10.118 |
| **P32**<br>**Alternative Power Blocks** | Robust design and optimisation of a radial turbine within a supercritical co2 solar Brayton cycle.<br>Persky, Rodney., Sauret, Emilie., Beath, Andrew.<br>(2015) Proceedings 11th World Congress on Structural and Multidisciplinary Optimisation (WCSMO), 7-12 June, Sydney, Australia. https://eprints.qut.edu.au/84808/ |
| **P41**<br>**Operations + Maintenance** | Investigation of Roughness Periodicity on The Hydrophobic Properties of Surfaces.<br>J. Toster and D.A.Lewis.<br>(2015) Aust J. Chem (special issue invited), 68, 1228-1232. http://dx.doi.org/10.1071/CH15310 |

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| **P42**<br>**Solar Fuels** | Storage capacities required for a solar thermal plant to avoid unscheduled reductions in output.<br>Kueh, K., Nathan, G.J., Saw, W.<br>(2015) Solar Energy, 118, 209–221. http://dx.doi.org/10.1016/j.solener.2015.04.040 |
| **P42**<br>**Solar Fuels** | Performance Assessment of Fischer–Tropsch Liquid Fuels Production by Solar Hybridized Dual Fluidized Bed Gasification of Lignite.<br>Guo, P., P. J. van Eyk, W. L. Saw, P. J. Ashman, G. J. Nathan and E. B. Stechel.<br>(2015) Energy & Fuels. http://dx.doi.org/10.1021/acs.energyfuels.5b00007 |
| **P42**<br>**Solar Fuels** | Fischer–Tropsch liquid fuel production by co-gasification of coal and biomass in a solar hybridized dual fluidized bed gasifier.<br>P. Guo, W. Saw, P. J. van Eyk, P. J. Ashman, G. J. Nathan and E. B. Stechel.<br>(2015) Energy Procedia. http://dx.doi.org/10.1016/j.egypro.2015.03.147 |
| **P42**<br>**Solar Fuels** | Solar hybridized coal-to-liquids via gasification in Australia: techno-economic assessment.<br>W. Saw, A. Kaniyal, P. J. van Eyk, P. J. Ashman, G. J. Nathan and E. B. Stechel.<br>(2015) Energy Procedia. http://dx.doi.org/10.1016/j.egypro.2015.03.158 |
| **P42**<br>**Solar Fuels** | The challenges and opportunities for integration of solar syngas production with liquid fuel synthesis.<br>James T. Hinkley, Robbie K. McNaughton, John Pye, Woei Saw and Ellen B. Stechel.<br>(2015) SolarPACES 2015, AIP Conf. Proc. 1734, 120003-1–120003-8. http://dx.doi.org/10.1063/1.4949205 |
| **P11**<br>**Receiver Scoping** | Development of the ASTRI heliostat.<br>J. Coventry, M. Arjomandi, J. Barry, M. Blanco, G .Burgess, J. Campbell, P. Connor, M. Emes, P. Fairman, D. Farrant, F. Ghanadi, V. Grigoriev, C. Hall, P. Koltun, D. Lewis, S. Martin, G. Nathan, J. Pye, A. Qiu, W. Stuart, Y. Tang, F. Venn, J. Yu.<br>(2016) AIP Conf. Proc. 1734, 020005. http://dx.doi.org/10.1063/1.4949029 |
| **P11**<br>**Receiver Scoping** | A Novel Solar Expanding-Vortex Particle Reactor: Experimental and Numerical Investigation of the Iso-thermal Flow Field and Particle Deposition.<br>Alfonso Chinnici, Maziar Arjomandi, Zhao Feng Tian, Graham Jerrold Nathan.<br>(2016) Solar Energy - Volume 133, August 2016, Pages 451–464. http://dx.doi.org/10.1016/j.solener.2016.04.006 |
| **P11**<br>**Receiver Scoping** | Experimental and numerical investigation of the flow characteristics within a Solar Expanding-Vortex Particle Receiver-Reactor.<br>Alfonso Chinnici, Yunpeng Xue, Timothy CW Lau, Maziar Arjomandi, Graham J Nathan.<br>(2016) Solar Energy - Volume 141, 1 January 2017, Pages 25–37. http://dx.doi.org/10.1016/j.solener.2016.11.020 |
| **P22**<br>**PCM storage** | Eutectic Na2CO3-NaCl salt: A new phase change material for high temperature thermal storage.<br>Sun, Y., Liu, M., Bruno, F., Li, S. Jiang, Y.<br>(2016) Solar Energy Materials and Solar Cells, 152, pp. 155-160. http://dx.doi.org/10.1016/j.solmat.2016.04.002 |
| **P22**<br>**PCM storage** | Embodied Energy and Cost of High Temperature Thermal Energy Storage Systems for use with Concentrated Solar Power Plants.<br>Jacob R, Belusko M, Fernández A.I., Cabeza L.F., Saman W., Bruno F.<br>(2016) Applied Energy vol. 180, 15 pp. 586-597. https://doi.org/10.1016/j.apenergy.2016.08.027 |
| **P22**<br>**PCM storage** | Eutectic Na2CO3–NaCl salt: A new phase change material for high temperature thermal storage.<br>Jiang, Y; Sun, Y; Liu, M; Bruno, F; Li, S.<br>(2016) Solar Energy Materials & Solar Cells, Volume 152 (2016) 155-160. https://doi.org/10.1016/j.solmat.2016.04.002 |

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|---|---|
| **P22**<br>**PCM storage** | Embodied energy and cost of high temperature thermal energy storage systems for use with concentrated solar power plants.<br>R Jacob, M Belusko, AI Fernández, LF Cabeza, W Saman, F Bruno.<br>(2016) Applied Energy, Volume 180, 15 October 2016, Pages 586-597 https://doi.org/10.1016/j.apenergy.2016.08.027 |
| **P22 PCM Storage** | A numerical model for thermal energy storage systems utilising encapsulated phase change materials<br>R. Jacob, W. Saman, F. Bruno.<br>(2016) AIP Conference Proceedings 1734, 050020. https://doi.org/10.1063/1.4949118 |
| **P22 PCM Storage** | Geopolymer encapsulation of a chloride salt phase change material for high temperature thermal energy storage<br>R. Jacob, N. Trout, R. Raud, S. Clarke, T. A. Steinberg, W. Saman, F. Brun.<br>(2016) AIP Conference Proceedings 1734, 050021 (2016). https://doi.org/10.1063/1.4949119 |
| **P31**<br>**sC02 systems - Power blocks** | Evaluation of Power Block Arrangements for 100MW Scale Concentrated Solar Thermal Power Generation Using Top-Down Design.<br>Post, Alex; Beath, Andrew; Sauret, Emilie; Persky, Rodney.<br>(2016) AIP Publishing; 2017. 1-8, SolarPACES 2016; 11-14 October 2016; Abu Dhabi, UAE https://doi.org/10.1063/1.4984382 |
| **P31**<br>**sC02 systems - Power blocks** | Parametric study on spray cooling system for optimising nozzle design with pre-cooling application in natural draft dry cooling towers.<br>Abdullah Alkhedhair*, Ingo Jahn, Hal Gurgenci, Zhiqiang Guan, Suoying He.<br>(2016) International Journal of Thermal Sciences, Volume 104, June 2016, Pages 448-460. http://dx.doi.org/10.1016/j.ijthermalsci.2016.02.004 |
| **P31**<br>**sC02 systems - Power blocks** | Simulation of the UQ Gatton natural draft dry cooling tower.<br>Xiaoxiao Li, Zhiqiang Guan, Hal Gurgenci, Yuanshen Lu, Suoying He.<br>(2016) Applied Thermal Engineering, Volume 105, 25 July 2016, Pages 1013–1020. http://dx.doi.org/10.1016/j.applthermaleng.2016.03.041 |
| **P31**<br>**sC02 systems - Power blocks** | Experimental investigation into the positive effects of a tri-blade-like windbreak wall on small size natural draft dry cooling towers.<br>Yuanshen Lu, Zhiqiang Guan, Hal Gurgenci, Abdullah Alkhedhair, Suoying He.<br>(2016) Applied Thermal Engineering, Volume 105, 25 July 2016, Pages 1000-1012. http://dx.doi.org/10.1016/j.applthermaleng.2016.03.175 |
| **P31**<br>**sC02 systems - Power blocks** | Design of Solar Enhanced Natural Draft Dry Cooling Tower for Solar Thermal Power Plants.<br>Guan, Zhiqiang; Gurgenci, Hal; Zou, Zheng.<br>(2016) Journal of the International Association for Shell and Spatial Structures (J. IASS), Volume 57 (1), 97-103. http://dx.doi.org/10.20898/j.iass.2016.187.763 |
| **P31**<br>**sC02 systems - Power blocks** | An investigation on spray cooling using saline water with experimental verification.<br>M.H. Sadafi., S. González Ruiz., M.R. Vetrano., I. Jahn., J. van Beeck., J.M. Buchlin., K. Hooman.<br>(2016) Energy Conversion and Management, Volume 108 (2016), Pages 336–347. http://dx.doi.org/10.1016/j.enconman.2015.11.025 |
| **P31**<br>**sC02 systems - Power blocks** | CFD simulation of a supercritical carbon dioxide radial-inflow turbine, comparing the results of using real gas equation of estate and real gas property file.<br>Odabaee, Mostafa, Sauret, Emilie and Hooman, Kamel.<br>(2016) Applied Mechanics and Materials, (2016) 846 85-90. http://dx.doi.org/10.4028/www.scientific.net/AMM.846.85 |
| **P31**<br>**sC02 systems - Power blocks** | Effect of operating conditions on the elastohydrodynamic performance of foil thrust bearings for supercritical CO2 cycles.<br>Qin, K., Jahn, I., Jacobs, P.<br>(2016) Journal of Engineering for Gas Turbines and Power, 139 4: 042505-1-042505-10. https://doi.org/10.1115/1.4034723 |

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| **P31**<br>**sC02 systems - Power blocks** | Nozzle arrangement effect on cooling performance of saline water spray cooling.<br>Sadafi, M. H., Jahn, I., Hooman, K.<br>(2016) Applied Thermal Engineering: Applied Thermal Engineering, Volume 105, 25 July 2016, 1061–1066. http://dx.doi.org/10.1016/j.applthermaleng.2016.01.078 |
| **P31**<br>**sC02 systems - Power blocks** | The influence of real gas effects on the performance of supercritical CO 2 dry gas seals.<br>Zakariya, M. F., Jahn, I. H. J.<br>(2016) Tribology International, Volume 102, October 2016, Pages 333–347. http://dx.doi.org/10.1016/j.triboint.2016.05.038 |
| **P31**<br>**sC02 systems - Power blocks** | On the Influence of Low-power Laser Source on the Evaporation of Single Droplets: Experimental and Numerical Approaches.<br>Sadafi, M. H., Ruiz, S. G., Vetrano, M. R., Beeck, van J., Jahn, I., Buchlin, J. M., Hooman, K.<br>(2016) Journal of Applied Fluid Mechanics, (2016) Vol. 9, Special Issue 1, pp. 81-87. https://espace.library.uq.edu.au/view/UQ:390548/UQ390548_OA.pdf |
| **P31**<br>**sC02 systems - Power blocks** | Development of a Computational Tool to Simulate Foil Bearings for Supercritical CO2 Cycles.<br>Qin, K., Jahn, I. H., Gollan, R. J., Jacobs, P. A.<br>(2016) Journal of Engineering for Gas Turbine and Power, 138 (9): 092503-1-092503-19. http://dx.doi.org/10.1115/1.4032740 |
| **P31**<br>**sC02 systems - Power blocks** | Development of a fluid-structure model for gas-lubricated bump-type foil thrust bearings.<br>Qin, Kan, Jahn, Ingo and Jacobs, Peter.<br>(2016) Applied Mechanics and Materials, 846 169-175. http://dx.doi:10.4028/www.scientific.net/AMM.846.169 |
| **P31**<br>**sC02 systems - Power blocks** | Performance enhancement for the natural draft dry cooling tower under crosswind condition by optimizing the water distribution.<br>X. Li, L. Xia, H. Gurgenci, Z. Guan.<br>(2016) Int. J. Heat Mass Transfer, 107 (2017) 271-280. http://dx.doi.org/10.1016/j.ijheatmasstransfer.2016.11.046 |
| **P31**<br>**sC02 systems - Power blocks** | Effect of Operating Conditions on the Elastohydrodynamic Performance of Foil Thrust Bearings for Supercritical CO2 Cycles.<br>K Qin, IH Jahn, PA Jacobs.<br>(2016) J. Eng. Gas Turbines Power 139(4), 042505 (Nov 08, 2016) (10 pages). Paper No: GTP-16-1349. https://doi.org/10.1115/1.4034723 |
| **P32**<br>**Alternative Power Blocks** | Preliminary and robust design analysis of a solar thermal power block.<br>Persky, R., Sauret, E.<br>(2016) Proceedings of the ASME Turbo Expo 2C (2016). https://doi.org/10.1115/GT2016-57172 |
| **P41**<br>**Operations + Maintenance** | A Case Study on Parameters Influencing Dust Accumulation on CSP Reflectors.<br>Selene Pennetta, Francesco Anglani, John Barry and Shengzhe Yu.<br>(2016) Journal of Energy and Power Engineering 10 (2016) 73-81 David Publishing. http://dx.doi.org/10.17265/1934-8975/2016.02.001 |
| **P42**<br>**Solar Fuels** | Efficient Ceria Nanostructures for Enhanced Solar Fuel Production via High-Temperature Thermochemical Redox Cycles.<br>Xiang Gao, Alejandro Vidal, Alicia Bayon, Roman Bader, Jim Hinkley, Wojciech Lipinski, Antonio Tricoli.<br>(2016) Journal of Materials Chemistry A. http://dx.doi.org/10.1039/C6TA02187E |
| **P01**<br>**OEM** | A study on the impact of time resolution in solar data on the performance modelling of CSP plants.<br>Mehdi Aghaei Meybodi, Lourdes Ramirez Santigosa , Andrew C. Beath.<br>(2017) Renewable Energy 109 (2017) 551-563. http://dx.doi.org/10.1016/j.renene.2017.03.024 |

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| **P01**<br>**OEM** | Techno-economic Analysis of Supercritical Carbon Dioxide Power Blocks.<br>Mehdi Aghaei Meybodi, Andrew Beath, Stephen Gwynn-Jones, Anand Veeraragavan, Hal Gurgenci, and Kamel Hooman.<br>(2017) AIP Conference Proceedings 1850, 060001 (1-8), SolarPACES, Abu Dhabi, UAE, 11–14 October. https://doi.org/10.1063/1.4984409 |
| **P11**<br>**Receiver Scoping** | Progress in heliostat development.<br>Pfahl A., Coventry J., Röger M., Wolfertstetter F., Vásquez-Arango JF., Gross F., Arjomandi M., Schwarzbözl P., Geiger M., Liedke P.<br>(2017) Solar Energy, Volume 152, August 2017, Pages 3-37. https://doi.org/10.1016/j.solener.2017.03.029 |
| **P11**<br>**Receiver Scoping** | Dish systems for CSP.<br>Coventry J, Andraka C.<br>(2017) Solar Energy, Volume 152, August 2017, Pages 140-170. https://doi.org/10.1016/j.solener.2017.02.056 |
| **P11**<br>**Receiver Scoping** | Effect of turbulence characteristics in the atmospheric surface layer on the peak wind loads on heliostats in stow position.<br>Emes, Arjomandi, Ghanadi, Kelso.<br>(2017) Solar Energy, Volume 157, 15 November 2017, Pages 284-297. https://doi.org/10.1016/j.solener.2017.08.031 |
| **P11**<br>**Receiver Scoping** | An investigation into the effect of aspect ratio on the heat loss from a solar cavity receiver.<br>Lee, Jafarian, Ghanadi, Arjomandi.<br>(2017) Solar Energy, Volume 149, June 2017, Pages 20-31. https://doi.org/10.1016/j.solener.2017.03.089 |
| **P11**<br>**Receiver Scoping** | Experimental and numerical investigation of the flow characteristics within a Solar Expanding-Vortex Particle Receiver-Reactor.<br>Alfonso Chinnici, Yunpeng Xue, Timothy Lau, Maziar Arjomandi, Graham Nathan.<br>(2017) Solar Energy, Volume 141, 25-37 (2017) https://doi.org/10.1016/j.solener.2016.11.020 |
| **P12**<br>**Heliostat Scoping** | Development of ASTRI high-temperature solar receivers.<br>Joe Coventry, et al.<br>(2017) AIP Conference Proceedings 1850, 030011 (2017). https://doi.org/10.1063/1.4984354 |
| **P21**<br>**High Temperature Storage** | Corrosion of Inconel 601 in molten salts for thermal energy storage<br>M. Sarvghad, G. Will, T.A. Steinberg.<br>(2017) Solar Energy Materials and Solar Cells, 172 (2017) 220-229. https://doi.org/10.1016/j.solmat.2017.07.036 |
| **P21**<br>**High Temperature Storage** | High temperature solar thermochemical process for production of stored energy and oxygen based on $CuO/Cu_2O$ redox reactions".<br>Haseli, Jafarian, Nathan.<br>(2017) Solar Energy, 2017, 153, pp 1-10 https://doi.org/10.1016/j.solener.2017.05.025 |
| **P21**<br>**High Temperature Storage** | Thermodynamic potential of molten copper oxide for high temperature solar energy storage and oxygen production.<br>Jafarian, Arjomandi, Nathan.<br>(2017) Applied Energy, 201, pp 69-83. https://doi.org/10.1016/j.apenergy.2017.05.049 |
| **P21**<br>**High Temperature Storage** | Investigation of lithium sulphate for high temperature thermal energy storage.<br>Bayon Sandoval, Alicia; Liu, Ming (Cherry); Bruno, Frank; Hinkley, Jim.<br>(2017) SolarPACES, Abu Dhabi, UAE, 11–14 October, AIP Conference Proceedings. 080005-1 080005-8. https://doi.org/10.1063/1.4984426 |

# ASTRI Journal publications

**2012 - 2022 as at July 2020**

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| Research Area | Publication Title + Authors + Full Citation + DOI |
|---|---|
| **P21**<br>**High Temperature Storage** | Annual Performance of a Solar-Thermochemical Hydrogen Production Plant Based on CeO2 Redox Cycle.<br>de la Calle Alonso, Alberto; Bayon Sandoval, Alicia.<br>(2017) Linköping Electronic Conference Proceedings; 2017. 857-866. https://doi.org/10.3384/ecp17132857 |
| **P21**<br>**High Temperature Storage** | Techno-economic assessment of solid-gas thermochemical energy storage systems for solar thermal power applications.<br>A. Bayon, R. Badr, M. Jafarian, L. Fedunik-Hofman, Y. Sun, J. Hinkley, S. Miller, W. Lipinski.<br>(2017) Energy, Volume 149, 15 April 2018, Pages 473-484. https://doi.org/10.1016/j.energy.2017.11.084 |
| **P22**<br>**PCM storage** | Comparative study of melting and solidification processes in different configurations of shell and tube high temperature latent heat storage system.<br>Soheila Riahi, Wasim Y. Saman, Frank Bruno, Martin Belusko, N.H.S. Tay.<br>(2017) Solar Energy, Volume 150, 2017, pp 363-374. https://doi.org/10.1016/j.solener.2017.04.061 |
| **P22**<br>**PCM storage** | Thermal stability of Na2CO3-Li2CO3 as a high temperature phase change material for thermal energy storage.<br>Jiang, Y., Sun, Y., Bruno, F., Li, S.<br>(2017) Thermochimica Acta, 2017, 650, pp. 88-94. https://doi.org/10.1016/j.tca.2017.01.002 |
| **P22**<br>**PCM storage** | A critical review of eutectic salt property prediction for latent heat energy storage systems.<br>Raud, R., Jacob, R., Bruno, F., Will, G., Steinberg, T.A.<br>(2017) Renewable and Sustainable Energy Reviews, 2017, 70, pp. 936-944. https://doi.org/10.1016/j.rser.2016.11.274 |
| **P22**<br>**PCM storage** | Impact of periodic flow reversal of heat transfer fluid on the melting and solidification processes in a latent heat shell and tube storage system.<br>Riahi, S., Saman, W.Y., Bruno, F., Belusko, M., Tay, N.H.S.<br>(2017) Applied Energy, 2017, 191, pp. 276-286. https://doi.org/10.1016/j.apenergy.2017.01.091 |
| **P22**<br>**PCM storage** | Comparative interaction of cold-worked versus annealed inconel 601 with molten carbonate salt at 450 °C.<br>Sarvghad, M., Chenu, T., Will, G.<br>(2017) Corrosion Science, 2017, 116, pp. 88-97. https://doi.org/10.1016/j.corsci.2017.01.004 |
| **P22**<br>**PCM storage** | Stress assisted oxidative failure of Inconel 601 for thermal energy storage.<br>Sarvghad, M., Bell, S., Raud, R., Steinberg, T.A., Will, G.<br>(2017) Solar Energy Materials and Solar Cells, 2017, 159, pp. 510-517. https://doi.org/10.1016/j.solmat.2016.10.008 |
| **P22**<br>**PCM storage** | A eutectic salt high temperature phase change material: Thermal stability and corrosion of SS316 with respect to thermal cycling.<br>M Liu, S Bell, M Segarra, NHS Tay, G Will, W Saman, F Bruno.<br>(2017) Materials and Solar Cells, Volume 170, October 2017, Pages 1-7 https://doi.org/10.1016/j.solmat.2017.05.047 |
| **P22**<br>**PCM storage** | Design optimization method for tube and fin latent heat thermal energy storage systems.<br>R Raud, ME Cholette, S Riahi, F Bruno, W Saman, G Will, TA Steinberg.<br>(2017) Energy 134, 585-594, 2017 https://doi.org/10.1016/j.energy.2017.06.013 |
| **P22**<br>**PCM storage** | Numerical Study of Melting Process Of A High-temperature Phase Change Material Including Natural Convection And Turbulence.<br>S Riahi, WY Saman, F Bruno, NHS Tay.<br>(2017) International Journal of Computational Methods and Experimental Measurements, Volume 5, Issue 5, p9 https://doi.org/10.2495/CMEM-V5-N5-723-732 |

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|---|---|
| **P22 PCM storage** | Review on transportable phase change material in thermal energy storage systems.<br>NHS Tay, M Liu, M Belusko, F Bruno.<br>(2017) Renewable and Sustainable Energy Reviews, Volume 75, August 2017, Pages 264-277 https://doi.org/10.1016/j.rser.2016.10.069 |
| **P22 PCM storage** | Corrosion of steel alloys in molten NaCl + Na2SO4 at 700 °C for thermal energy storage.<br>M. Sarvghad, G. Will, T.A. Steinberg.<br>(2017) Solar Energy Materials and Solar Cells, 179 (2018) 207-216. https://doi.org/10.1016/j.solmat.2017.11.017 |
| **P22 PCM storage** | Novel Na2SO4-NaCl-ceramic composites as high temperature phase change materials for solar thermal power plants (Part I).<br>Jiang, Y; Sun, Y; Jacob, RD; Bruno, F; Li, S.<br>(2017) Solar Energy Materials & Solar Cells, Volume 178 (2018) 155-160. https://doi.org/10.1016/j.solmat.2017.12.034 |
| **P22 PCM storage** | Development and experimental validation of a CFD model for PCM in a vertical triplex tube heat exchanger.<br>S Almsater, A Alemu, W Saman, F Brun.<br>(2017) Applied Thermal Engineering, Volume 116, April 2017, Pages 344. https://doi.org/10.1016/j.applthermaleng.2017.01.104 |
| **P22 PCM storage** | Corrosion of steel alloys in eutectic NaCl+Na2CO3 at 700 °C and Li2CO3 + K2CO3 + Na2CO3 at 450 °C for thermal energy storage.<br>M. Sarvghad, T.A. Steinberg, G. Will.<br>(2017) Solar Energy Materials and Solar Cells, 170, 48-59. https://doi.org/10.1016/j.solmat.2017.05.063 |
| **P22 PCM Storage** | Capital cost expenditure of high temperature latent and sensible thermal energy storage systems.<br>R. Jacob, W. Saman, F. Bruno.<br>(2017) AIP Conference Proceedings 1850, 080012. https://doi.org/10.1063/1.4984433 |
| **P31 sC02 systems - Power blocks** | A review on the performance evaluation of natural draft dry cooling towers and possible improvements via inlet air spray cooling.<br>Sun, Yubiao , Guan, Zhiqiang and Hooman, Kamel.<br>(2017) Renewable and Sustainable Energy Reviews, Volume 79, November 2017, Pages 618-637 https://doi.org/10.1016/j.rser.2017.05.151 |
| **P31 sC02 systems - Power blocks** | Full Scale Experimental Study of a Small Natural Draft Dry Cooling Tower for Concentrating Solar Thermal Power Plant.<br>Xiaoxiao Li*, Sam Duniam, Hal Gurgenci, Zhiqiang Guan, Anand Veeraragavan<br>(2017) Applied Energy, Volume 193, Pages 1-550 (1 May 2017). https://doi.org/10.1016/j.apenergy.2017.02.032 |
| **P31 sC02 systems - Power blocks** | Supercritical CO2 Radial Turbine Design Performance as a Function of Turbine Size Parameters.<br>J Qi, T Reddell, K Qin, K Hooman, IHJ Jahn.<br>(2017) Journal of Turbomachinery, Volume 139, Issue 8. Paper No: TURBO-16-1191. https://doi.org/10.1115/1.4035920 |
| **P31 sC02 systems - Power blocks** | Application of a wall function to simulate turbulent flows in foil bearings at high rotational speeds.<br>Qin, K., R.J. Gollan, and I.H. Jahn.<br>(2017) Tribology International, Volume 115, November 2017, Pages 546-556. https://doi.org/10.1016/j.triboint.2017.06.018 |
| **P31 sC02 systems - Power blocks** | Supercritical CO2 Radial Turbine Design Performance as a Function of Turbine Size Parameters.<br>Jianhui Qi, Thomas Reddell, Kan Qin, Kamel Hooman, Ingo H. J. Jahn.<br>(2017) Journal of Turbomachinery-J. Turbomach. Aug 2017, 139(8): 081008, 11 pages. Paper No: TURBO-16-1191. https://doi.org/10.1115/1.4035920 |

# ASTRI Journal publications

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|---|---|
| **P31**<br>**sC02 systems - Power blocks** | Measurements of crosswind influence on a natural draft dry cooling tower for a solar thermal power plant.<br>Li, Xiaoxiao, Gurgenci, Hal, Guan, Zhiqiang, Wang, Xurong and Duniam, Sam.<br>(2017) Applied Energy, Volume 206, 15 November 2017, Pages 1169-1183 https://doi.org/10.1016/j.apenergy.2017.10.038 |
| **P31**<br>**sC02 systems - Power blocks** | A study on multi-nozzle arrangement for spray cooling system in natural draft dry cooling tower.<br>Sun, Yubiao, Guan, Zhiqiang, Gurgenci, Hal, Li, Xiaoxiao and Hooman, Kamel.<br>(2017) Applied Thermal Engineering, Volume 124, September 2017, Pages 795-814 https://doi.org/10.1016/j.applthermaleng.2017.05.157 |
| **P31**<br>**sC02 systems - Power blocks** | Comparison of direct and indirect natural draft dry cooling tower cooling of the sCO2 Brayton cycle for concentrated solar power plants.<br>Duniam, S., et al.<br>(2017) Applied Thermal Engineering, Volume 130, 5 February 2018, Pages 1070-1080. https://doi.org/10.1016/j.applthermaleng.2017.10.169 |
| **P32**<br>**Alternative Power Blocks** | Loss models for on and off-design performance of radial inflow turbomachinery.<br>Persky, R., Sauret, E.<br>(2017) Applied Thermal Engineering, 150, pp.1066-1077. https://doi.org/10.1016/j.applthermaleng.2019.01.042 |
| **P41**<br>**Operations + Maintenance** | Optimal condition-based cleaning of solar power collectors.<br>Ba, H. T., Cholette, M. E., Wang, R., Borghesani, P., Ma, L., & Steinberg, T. A.<br>(2017) Solar Energy, 157, 762-777. https://doi.org/10.1016/j.solener.2017.08.076 |
| **P42**<br>**Solar Fuels** | Apparatus for the Investigation of High-Temperature, High-Pressure Gas-Phase Heterogeneous Catalytic and Photo-Catalytic Materials.<br>Jason Alvino, Trystan Bennet, Rantej Kler, Rohan Hudson, Julien Aupoil, Thomas Nann, Vladimir Golovko, Gunther Anderson, Greg Metha.<br>(2017) Reviews of scientific instrumentation. http://dx.doi.org/10.1063/1.4982350 |
| **P42**<br>**Solar Fuels** | Aggregation behavior of ligand-protected Au9 clusters on sputtered ALD TiO2.<br>H.S. Al Qahtani, G. F. Metha, R. B. Walsh, V. B. Golovko, G. G. Andersson, and T. Nakayama.<br>(2017) J. Phys. Chem. C, 2017, 121, 10781. https://doi.org/10.1016/j.applthermaleng.2019.01.042 |
| **P42**<br>**Solar Fuels** | Thermodynamic modelling and solar reactor design for syngas production through SCWG of algae.<br>M.B. Venkataraman, A. Rahbari, J. Pye.<br>(2017) AIP Conference Proceedings 1850 (2017) 100017. https://doi.org/10.1063/1.4984474 |
| **P42**<br>**Solar Fuels** | System optimization for Fischer-Tropsch liquid fuels production via solar hybridized dual fluidized bed gasification of solid fuels.<br>Guo, Peijun, Saw, Woei, van Eyk, Philip, Stechel, Ellen, Ashman, Peter, Nathan, Graham.<br>(2017) Energy Fuels, 2017, 31 (2), pp 2033–2043. https://doi.org/10.1021/acs.energyfuels.6b01755 |
| **P42**<br>**Solar Fuels** | Gasification reactivity and physiochemical properties of the chars from raw and torrefied wood, grape marc and macroalgae.<br>Guo, Peijun, Saw, Woei, van Eyk, Philip, Stechel, Ellen, de Nys, Rocky, Ashman, Peter, Nathan, Graham.<br>(2017) Energy Fuels, 2017, 31 (2), pp 2046–2059. https://doi.org/10.1021/acs.energyfuels.6b02215 |
| **P42**<br>**Solar Fuels** | Approaches to accommodate resource variability in the modelling of solar driven gasification processes for liquid fuels synthesis.<br>Woei Saw, Peijun Guo, Philip van Eyk, Graham Nathan.<br>(2017) Solar Energy, Volume 156, 1 November 2017, Pages 101-112 https://doi.org/10.1016/j.solener.2017.05.085 |

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|---|---|
| **P42**<br>**Solar Fuels** | Investigation of Ligand-Stabilized Gold Clusters on Defect-Rich Titania.<br>G. Krishnan, H. S. Al Qahtani, J. Li, Y. Yin, N. Eom, V. B. Golovko, G. F. Metha, G. G. Andersson.<br>(2017) J. Phys. Chem. C 2017, 121, 50, 28007-28016. https://doi.org/10.1021/acs.jpcc.7b09514 |
| **P42**<br>**Solar Fuels** | Apparatus for the Investigation of High-Temperature, High-Pressure Gas-Phase Heterogeneous Catalytic and Photo-Catalytic Materials.<br>J. F. Alvino, T. Bennett, R. Kler, Th. Nann, G. G. Andersson, G. F. Metha.<br>(2017) Review of Scientific Instruments 88, 054101. https://doi.org/10.1063/1.4982350 |
| **P11**<br>**Receiver Scoping** | Investigation of peak wind loads on tandem heliostats in stow position.<br>Emes, Ghanadi, Arjomandi, Kelso.<br>(2018) Solar Energy, Volume 121, 15 June 2018, Pages 548-558. https://doi.org/10.1016/j.renene.2018.01.080 |
| **P11**<br>**Receiver Scoping** | Experimental investigation of the effects of wind speed and yaw angle on heat losses from a heated cavity.<br>Ka Lok Lee, Alfonso Chinnici, Mehdi Jafarian, Maziar Arjomandi, Bassam Dally, Graham Nathan.<br>(2018) Solar Energy, Volume 165, 1 May 2018, Pages 178-188. https://doi.org/10.1016/j.solener.2018.03.023 |
| **P12**<br>**Sodium receivers** | Development of high absorption, high durability coatings for solar receivers in CSP plants.<br>Kaoru Tsuda, Yasushi Murakami, Juan F. Torres, Joe Coventry.<br>(2018) AIP Conference Proceedings 2033, 040039. https://doi.org/10.1063/1.5067075 |
| **P12**<br>**Sodium receiver** | Limits of the cylindrical absorber design for a sodium receiver.<br>Charles-Alexis Asselineau, William Logie, John Pye, Joe Coventry<br>(2018) AIP Conference Proceedings 2033, 040006. https://doi.org/10.1063/1.5067042 |
| **P12**<br>**Sodium receiver** | Exergy analysis of the focal-plane flux distribution of solar-thermal concentrators.<br>Charles-Alexis Asselineau, Joe Coventry, John Pye<br>(2018) Applied Energy. Volume 222, 15 July 2018, Pages 1023-1032. https://doi.org/10.1016/j.apenergy.2018.04.027 |
| **P12**<br>**Sodium receiver** | Thermoelastic stress in concentrating solar receiver tubes: A retrospect on stress analysis methodology, and comparison of salt and sodium.<br>William R.Logie, John D.Pye, Joe Coventry<br>(2018) Solar Energy. Volume 160, 15 January 2018, Pages 368-379. https://doi.org/10.1016/j.solener.2017.12.003 |
| **P21**<br>**High temperature storage** | Solar thermal hybrids for combustion power plant: A growing opportunity.<br>Graham Nathan, Mehdi Jafarian, Bassam Dally, Woei Saw, Peter Ashman, Eric Hu, Aldo Steinfeld<br>(2018) Progress in Energy and Combustion Science, 64 (2018), 4-28. https://doi.org/10.1016/j.pecs.2017.08.002 |
| **P21**<br>**High Temperature Storage**<br>***P22 PCM Storage ASTRI 1.0** | Performance comparison of latent heat storage systems comprising plate fins with different shell and tube configurations.<br>Soheila Riahi, Wasim Y Saman, Frank Bruno, Martin Belusko, N.H.S. Tay<br>(2018) Applied Energy, Volume 212, February 2018, Pages 1095-1106 https://doi.org/10.1016/j.apenergy.2017.12.109 |
| **P21**<br>**High Temperature Storage**<br>***P22 PCM Storage ASTRI 1.0** | Corrosion of stainless steel 316 in eutectic molten salts for thermal energy storage.<br>Madjid Sarvghad, Theodore A.Steinberg, Geoffrey Will<br>(2018) Solar Energy. Volume 172, Part 2, 15 September 2018, Pages 198-203. https://doi.org/10.1016/j.solener.2018.03.053 |

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|---|---|
| **P21 High Temperature Storage** *P22 PCM Storage ASTRI 1.0 | High-Temperature Phase Change Material (PCM) Selection for Concentrating Solar Power Tower Applications.<br>Teng-Cheong Ong, Elizabeth Graham, Geoffrey Will, Theodore A. Steinberg<br>(2018) Advanced Sustainable Systems. Volume3, Issue 2, February 2019, 1800131. https://doi.org/10.1002/adsu.201800131 |
| **P21 High Temperature Storage** *P22 PCM Storage ASTRI 1.0 | Optimized Salt Selection for Solar Thermal Latent Heat Energy Storage.<br>Ralf Raud, Stuart Bell, Teng-Cheong Ong, Geoffrey Will, Theodore A. Steinberg<br>(2018) Advanced Sustainable Systems. Volume 2, Issue 11, November 2018, 1800074. https://doi.org/10.1002/adsu.201800074 |
| **P21 High Temperature Storage** *P22 PCM Storage ASTRI 1.0 | Dynamic Concept at University of South Australia.<br>Nguan H. Steven Tay, Martin Belusko, Ming Liu, Frank Bruno<br>(2018) Book chapter - High Temperature Thermal Storage Systems Using Phase Change Materials, Chapter 3 2018, 39-92<br>https://doi.org/10.1016/B978-0-12-805323-2.00003-5 |
| **P21 High Temperature Storage** *P22 PCM Storage ASTRI 1.0 | Static Concept at University of South Australia.<br>Nguan H. Steven Tay, Martin Belusko, Ming Liu, Frank Bruno<br>(2018) Book chapter - High Temperature Thermal Storage Systems Using Phase Change Materials, Chapter 7 2018, Pages 157-191.<br>https://doi.org/10.1016/B978-0-12-805323-2.00007-2 |
| **P21 High Temperature Storage** *P22 PCM Storage ASTRI 1.0 | Materials for Phase Change Material at High Temperature.<br>Ming Liu, Ana Inés Fernández, Mercè Segarra<br>(2018) Book chapter - High Temperature Thermal Storage Systems Using Phase Change Materials, Chapter 8 2018, Pages 195-230.<br>https://doi.org/10.1016/B978-0-12-805323-2.00008-4 |
| **P21 High Temperature Storage** *P22 PCM Storage ASTRI 1.0 | Encapsulation of High-Temperature Phase Change Materials.<br>Rhys Jacob, Wasim Saman, Frank Bruno<br>(2018) Book chapter - High Temperature Thermal Storage Systems Using Phase Change Materials, Chapter 9 2018, Pages 231-274.<br>https://doi.org/10.1016/B978-0-12-805323-2.00009-6 |
| **P21 High Temperature Storage** *P22 PCM Storage ASTRI 1.0 | Corrosion of AISI316 as containment materials for latent heat thermal energy storage systems based on carbonates.<br>J. Gallardo-González, Mònica Martínez, Camila Barreneche, Ana Inés Fernández, Ming Liu, N.H. Steven Tay, Frank Bruno, Mercè Segarra<br>(2018) Solar Energy Materials and Solar Cells. Volume 186, November 2018, Pages 1-8. https://doi.org/10.1016/j.solmat.2018.06.003 |
| **P21 High Temperature Storage** *P22 PCM Storage ASTRI 1.0 | Effect of inner coatings on the stability of chloride-based phase change materials encapsulated in geopolymers.<br>Rhys Jacob, Ralf Raud, Neil Trout, Stuart Bell, Stephen Clarke, Geoffrey Will, Wasim Saman, Frank Bruno<br>(2018) Solar Energy Materials and Solar Cells. Volume 174, January 2018, Pages 271-276. https://doi.org/10.1016/j.solmat.2017.09.016 |
| **P21 High Temperature Storage** *P22 PCM Storage ASTRI 1.0 | Investigation into the behaviour of aluminium and steel under melt/freeze cyclic conditions.<br>Rhys Jacob, Alexander Sibley, Martin Belusko, Ming Liu, Jamie Quinton, Gunter Andersson<br>(2018) Journal of Energy Storage. Volume 17, June 2018, Pages 249-260. https://doi.org/10.1016/j.est.2018.03.001 |
| **P21 High Temperature Storage** *P22 PCM Storage ASTRI 1.0 | Economic Studies on High Temperature Phase Change Material Storage Systems.<br>Rhys Jacob, Martin Belusko, Wasim Saman, Frank Bruno<br>(2018) Book chapter - High Temperature Thermal Storage Systems Using Phase Change Materials. Chapter 11 2018, Pages 297-318. |

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| Research Area | Publication Title + Authors + Full Citation + DOI |
|---|---|
| | https://doi.org/10.1016/B978-0-12-805323-2.00011-4 |
| **P21**<br>**High Temperature Storage** *ASTRI 1.0<br>**P22 PCM Storage** | Using thermal energy storage to replace natural gas in commercial/industrial applications.<br>Rhys Jacob, Martin Belusko, Ming Liu, Wasim Saman, Frank Bruno<br>(2018) AIP Conference Proceedings 2033, 090015. https://doi.org/10.1063/1.5067109 |
| **P23**<br>**Emerging Storage Technologies** | Thermo-economic analysis of high-temperature sensible thermal storage with different ternary eutectic alkali and alkaline earth metal chlorides.<br>Gowtham Mohan, Mahesh Venkataraman, Judith Gomez-Vidal, Joe Coventry<br>(2018) Solar Energy. Volume 176, December 2018, Pages 350-357. https://doi.org/10.1016/j.solener.2018.10.008 |
| **P23**<br>**Emerging Storage Technologies** | Performance of molten sodium vs. molten salts in a packed bed thermal energy storage.<br>Klarissa Niedermeier, Luca Marocco, Jonathan Flesch, Gowtham Mohan, Joe Coventry, Thomas Wetzel<br>(2018) Applied Thermal Engineering. Volume 141, August 2018, Pages 368-377. https://doi.org/10.1016/j.applthermaleng.2018.05.080 |
| **P23**<br>**Emerging Storage Technologies** | Assessment of a novel ternary eutectic chloride salt for next generation high-temperature sensible heat storage.<br>Gowtham Mohan, Mahesh Venkataraman, Judith Gomez-Vidal, Joe Coventry<br>(2018) Energy Conversion and Management. Volume 167, 1 July 2018, Pages 156-164. https://doi.org/10.1016/j.enconman.2018.04.100 |
| **P23**<br>**Emerging Storage Technologies** | Novel Na2SO4-NaCl-ceramic composites as high temperature phase change materials for solar thermal power plants (Part I).<br>Yifeng Jiang, Yanping Sun, Rhys D. Jacob, Frank Bruno, Sean Li<br>(2018) Solar Energy Materials & Solar Cells. Volume 178, May 2018, Pages 74-83. https://doi.org/10.1016/j.solmat.2017.12.034 |
| **P31 Power Systems** | Numerical study on cooling heat transfer of turbulent supercritical CO2 in large horizontal tubes<br>Wang, Jianyong, Guan, Zhiqiang, Gurgenci, Hal, Veeraragavan, Ananthanarayanan, Kang, Xin, Sun, Yubiao and Hooman, Kamel<br>(2018) International Journal of Heat and Mass Transfer, 126 B: 1002-1019. https://doi.org/10.1016/j.ijheatmasstransfer.2018.06.070 |
| **P31 Power Systems** | The transient start-up process of natural draft dry cooling towers in dispatchable thermal power plants<br>Dong, Peixin, Li, Xiaoxiao, Guan, Zhiqiang and Gurgenci, Hal<br>(2018) International Journal of Heat and Mass Transfer, 123 201-212. https://doi.org/10.1016/j.ijheatmasstransfer.2018.02.114 |
| **P31 Power Systems** | Investigations on the influence of nozzle arrangement on the pre-cooling effect for the natural draft dry cooling tower<br>Sun, Yubiao, Guan, Zhiqiang, Gurgenci, Hal, Hooman, Kamel and Li, Xiaoxiao<br>(2018) Applied Thermal Engineering, 130 979-996. https://doi.org/10.1016/j.applthermaleng.2017.10.171 |
| **P31**<br>**sC02 systems - Power blocks** | Computational investigations of heat transfer to supercritical CO2 in a large horizontal tube.<br>Wang, Jianyong, Guan, Zhiqiang, Gurgenci, Hal, Hooman, Kamel, Veeraragavan, Anand and Kang, Xin<br>(2018) Energy Conversion and Management, Volume 157, 1 February 2018, Pages 536-548. https://doi.org/10.1016/j.enconman.2017.12.046 |
| **P32**<br>**Alternative Power Blocks** | Assessment of turbine performance variability in response to power block design decisions for SF6 and CO2 solar thermal power plants.<br>Rodney Persky, Emilie Sauret<br>(2018) Energy Conversion and Management. Volume 169, 1 August 2018, Pages 255-265. https://doi.org/10.1016/j.enconman.2018.04.080 |
| **P41**<br>**Operations + Maintenance** | Soiling of solar collectors–Modelling approaches for airborne dust and its interactions with surfaces.<br>G. Picotti, P. Borghesani, M.E. Cholette, G. Manzolini |

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|---|---|
| | (2018) Renewable and Sustainable Energy Reviews, 81(P2), 2343-2357. https://doi.org/10.1016/j.rser.2017.06.043 |
| **P41 Operations + Maintenance** | Development and experimental validation of a physical model for the soiling of mirrors for CSP industry applications<br>G. Picotti, P. Borghesani, G. Manzolini, M.E.Cholette, R. Wang<br>(2018) Sol Energy 2018, 173:1287–305. https://doi.org/10.1016/j.solener.2018.08.066 |
| **P42 Solar Fuels** | Energy and exergy analysis of concentrated solar supercritical water gasification of algal biomass<br>A. Rahbari, M.B. Venkataraman, J. Pye.<br>(2018) Applied Energy, 228 (2018) 1669–1682. https://doi.org/10.1016/j.apenergy.2018.07.002 |
| **P42 Solar Fuels** | Ash-bed material interaction during combustion and steam gasification of Australian agricultural residues.<br>Zimeng He, Daniel Lane, Woei Saw, Philip van Eyk, Graham Nathan, Peter Ashman<br>(2018) Energy and Fuels, 32(4) (2018), 4278-4290. https://doi.org/10.1021/acs.energyfuels.7b03129 |
| **P43 Materials** | Materials compatibility for the next generation of Concentrated Solar Power plants<br>Madjid Sarvghad, Salar Delkasar Maher, David Collard, Matthew Tassan, Geoffrey Will, Theodore A.Steinberg<br>(2018) Energy Storage Materials. https://doi.org/10.1016/j.ensm.2018.02.023 |
| **P43 Materials** | Testing and Evaluating of Structural Materials for CSP Applications<br>Madjid Sarvghad, Geoffrey Will, Theodore A Steinberg<br>(2018) ECS Transactions, Volume 85, 233rd ECS Meeting, Seattle, WA, May 13 – May 17, 2018, Number 2. DOI: 10.1149/08502.0023ecst |
| **P11 Heliostats** | Design of efficient stamped mirror facets using topography optimisation<br>Nicholas Rumsey-Hill, Johannes Pottas, Joe Coventry<br>(2019) AIP Conference Proceedings 2126, 030048. https://doi.org/10.1063/1.5117560 |
| **P11 Heliostats** | A method for the calculation of the design wind loads on heliostats.<br>Matthew Emes, Azadeh Jafari, Farzin Ghanadi, Maziar Arjomandi<br>(2019) AIP Conference Proceedings 2126, 030020 (2019). https://doi.org/10.1063/1.5117532 |
| **P11 Heliostats** | Experimental investigation of peak wind loads on tandem operating heliostats within an atmospheric boundary layer.<br>Jeremy Yu, Matthew Emes, Farzin Ghanadi, Maziar Arjomandi, Richard Kelso<br>(2019) Solar Energy, 183 (2019), 248-259. https://doi.org/10.1016/j.solener.2019.03.002 |
| **P11 Heliostats** | Correlating turbulence intensity and length scale with the unsteady lift force on flat plates in an atmospheric boundary layer flow.<br>Azadeh Jafari, Farzin Ghanadi, Maziar Arjomandi, Matthew Emes, Benjamin Cazzolato<br>(2019) Journal of Wind Engineering and Industrial Aerodynamics, 189 (2019), 218-230. https://doi.org/10.1016/j.jweia.2019.03.029 |
| **P11 Heliostats** | Measurement of unsteady wind loads in a wind tunnel: scaling of turbulence spectra.<br>Azadeh Jafari, Farzin Ghanadi, Matthew Emes, Maziar Arjomandi, Benjamin Cazzolato<br>(2019) Journal of Wind Engineering and Industrial Aerodynamics, 193 (2019), 103955. https://doi.org/10.1016/j.jweia.2019.103955 |
| **P11 Heliostats** | Hinge and overturning moments due to unsteady heliostat pressure distributions in a turbulent atmospheric boundary layer.<br>Matthew Emes, Azadeh Jafari, Farzin Ghanadi, Maziar Arjomandi |

| Research Area | Publication Title + Authors + Full Citation + DOI |
|---|---|
| | (2019) Solar Energy, 193 (2019), 604-617 https://doi.org/10.1016/j.solener.2019.09.097 |
| **P11**<br>**Heliostats** | Turbulence length scales in a low-roughness near-neutral atmospheric surface layer.<br>Matthew Emes, Maziar Arjomandi, Richard Kelso, Farzin Ghanadi<br>(2019) Journal of Turbulence, 20:9 (2019), 545-562. https://doi.org/10.1080/14685248.2019.1677908 |
| **P14**<br>**Particle receiver** | The influence of wall temperature distribution on the mixed convective losses from a heated cavity.<br>Ka Lok Lee, Alfonso Chinnici, Mehdi Jafarian, Maziar Arjomandi, Bassam Dally, Graham Nathan<br>(2019) Applied Thermal Engineering, 155 (2019), 157-165, https://doi.org/10.1016/j.applthermaleng.2019.03.052 |
| **P14**<br>**Particle receiver** | The influence of wind speed, aperture ratio and tilt angle on the heat losses from a finely controlled heated cavity for a solar receiver.<br>Ka Lok Lee, Alfonso Chinnici, Mehdi Jafarian, Maziar Arjomandi, Bassam Dally, Graham Nathan<br>(2019) Renewable Energy, 143 (2019),1544-1553, https://doi.org/10.1016/j.renene.2019.05.015 |
| **P14**<br>**Particle receiver** | Thermal performance of vortex-based solar particle receivers for sensible heating.<br>Dominic Davis, Mehdi Jafarian, Alfonso Chinnici, Woei Saw, Graham Nathan<br>(2019) Solar Energy, 177 (2019), 163-177. https://doi.org/10.1016/j.solener.2018.10.086 |
| **P14**<br>**Particle receiver** | Particle residence time distributions in a vortex-based solar particle receiver-reactor: The influence of receiver tilt angle.<br>Dominic Davis, Maurizio Troiano, Alfonso Chinnici, Woei Saw, Timothy Lau, Roberto Solimene, Piero Salatino, Graham Nathan<br>(2019) Solar Energy, 190 (2019), 126-138. https://doi.org/10.1016/j.solener.2019.07.078 |
| **P21**<br>**High Temperature Storage** | Thermogravimetric analysis of Cu, Mn, Co, and Pb oxides for thermochemical energy storage.<br>Mahyah Silakhori, Mehdi Jafarian, Maziar Arjomandi, Graham Nathan<br>(2019) Journal of Energy Storage, 23 (2019), 138-147. https://doi.org/10.1016/j.est.2019.03.008 |
| **P21**<br>**High Temperature Storage** | Experimental assessment of copper oxide for liquid chemical looping for thermal energy storage.<br>Mahyah Silakhori, Mehdi Jafarian, Maziar Arjomandi, Graham Nathan<br>(2019) Journal of Energy Storage, 21 (2019), 216-221. https://doi.org/10.1016/j.est.2018.11.033 |
| **P21**<br>**High Temperature Storage**<br>***P22 PCM Storage ASTRI 1.0** | Corrosion mechanisms in molten salt thermal energy storage for concentrating solar power<br>Stuart Bell, Theodore A. Steinberg, Geoffrey Will<br>(2019) Renewable and Sustainable Energy Reviews. Volume 114, October 2019, 109328. https://doi.org/10.1016/j.rser.2019.109328 |
| **P21**<br>**High Temperature Storage**<br>***P22 PCM Storage ASTRI 1.0** | Review on the development of high temperature phase change material composites for solar thermal energy storage<br>Yifeng Jiang, Ming Liu, Yanping Sun<br>(2019) Solar Energy Materials and Solar Cells. Volume 203, December 2019, 110164. https://doi.org/10.1016/j.solmat.2019.110164 |
| **P21**<br>**High Temperature Storage**<br>***P22 PCM Storage ASTRI 1.0** | Experimental investigation of specific heat capacity improvement of a binary nitrate salt by addition of nanoparticles/microparticles<br>Ming Liu, John Severino, Frank Bruno, Peter Majewski<br>(2019) Journal of Energy Storage. Volume 22, April 2019, Pages 137-143. https://doi.org/10.1016/j.est.2019.01.025 |

# ASTRI Journal publications

**2012 - 2022 as at July 2020**

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| Research Area | Publication Title + Authors + Full Citation + DOI |
|---|---|
| **P21 High Temperature Storage** *P22 PCM Storage ASTRI 1.0 | Novel solid–solid phase-change cascade systems for high-temperature thermal energy storage<br>Alicia Bayon, Ming Liu, Dmitry Sergeev, Mihaela Grigore, Frank Bruno, Michael Müller<br>(2019) Solar Energy. Volume 177, 1 January 2019, Pages 274-283. https://doi.org/10.1016/j.solener.2018.10.085 |
| **P21 High Temperature Storage** *P22 PCM Storage ASTRI 1.0 | Characterisation of promising phase change materials for high temperature thermal energy storage<br>Rhys Jacob, Ming Liu, Yanping Sun, Martin Belusko, Frank Bruno<br>(2019) Journal of Energy Storage. Volume 24, August 2019, 100801. https://doi.org/10.1016/j.est.2019.100801 |
| **P21 High Temperature Storage** *P22 PCM Storage ASTRI 1.0 | Using renewables coupled with thermal energy storage to reduce natural gas consumption in higher temperature commercial/industrial applications<br>Rhys Jacob, Martin Belusko, Ming Liu, Wasim Saman, Frank Bruno<br>(2019) Renewable Energy. Volume 131, February 2019, Pages 1035-1046. https://doi.org/10.1016/j.renene.2018.07.085 |
| **P21 High Temperature Storage** *P22 PCM Storage ASTRI 1.0 | Sensible and latent heat energy storage systems for concentrated solar power plants, exergy efficiency comparison<br>Soheila Riahi, Yoann Jovet, Wasim Y. Saman, Martin Belusko, Frank Bruno<br>(2019) Solar Energy. Volume 180, 1 March 2019, Pages 104-115. https://doi.org/10.1016/j.solener.2018.12.072 |
| **P23 Emerging Storage Technologies** | Sensible energy storage options for concentrating solar power plants operating above 600°C<br>Gowtham Mohan, Mahesh B.Venkataraman, Joe Coventry<br>(2019) Renewable and Sustainable Energy Reviews, 107:319-337, June 2019 https://doi.org/10.1016/j.rser.2019.01.062 |
| **P23 Emerging Storage Technologies** | Review on the development of high temperature phase change material composites for solar thermal energy storage<br>Jiang, Yifeng; Liu, Ming; Sun, Yanping<br>(2018) Solar Energy Materials & Solar Cells. 2019; 203:110164. https://doi.org/10.1016/j.solmat.2019.110164 |
| **P23 Emerging Storage Technologies** | Characterisation of promising phase change materials for high temperature thermal energy storage<br>Rhys Jacob, Ming Liu, Yanping Sun, Martin Belusko, Frank Bruno<br>(2019) Journal of Energy Storage. Volume 24, August 2019, 100801. https://doi.org/10.1016/j.est.2019.100801 |
| **P23 Emerging Storage Technologies** | Performance of novel Na2SO4-NaCl-ceramic composites as high temperature phase change materials for solar power plants (Part II)<br>Yifeng Jiang, Yanping Sun, Sean Li<br>(2019) Solar Energy Materials and Solar Cells. Volume 194, 1 June 2019, Pages 285-294 https://doi.org/10.1016/j.solmat.2018.05.028 |
| **P31 Power Systems** | A novel method to predict the transient start-up time for natural draft dry cooling towers in dispatchable power plants<br>Dong, Peixin, Kaiser, Antonio S., Guan, Zhiqiang, Li, Xiaoxiao, Gurgenci, Hal and Hooman, Kamel<br>(2019) International Journal of Heat and Mass Transfer, 145. https://doi.org/10.1016/j.ijheatmasstransfer.2019.118794 |
| **P31 Power Systems** | Coupling supercritical carbon dioxide Brayton cycle with spray-assisted dry cooling technology for concentrated solar power<br>Sun, Yubiao, Duniam, Sam, Guan, Zhiqiang, Gurgenci, Hal, Dong, Peixin, Wang, Jianyong and Hooman, Kamel<br>(2019) Applied Energy, 251 113328. https://doi.org/10.1016/j.apenergy.2019.113328 |
| **P31 Power Systems** | Seasonal variation on the performance of the dry cooled supercritical CO2 recompression cycle<br>Ehsan, M. Monjurul, Duniam, Sam, Guan, Zhiqiang, Gurgenci, Hal and Klimenko, Alexander<br>(2019) Energy Conversion and Management, 197 111865. doi:10.1016/j.enconman.2019.111865 https://doi.org/10.1016/j.enconman.2019.111865 |

# ASTRI Journal publications

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|---|---|
| **P31 Power Systems** | Computational investigations on convective flow and heat transfer of turbulent supercritical CO2 cooled in large inclined tubes<br>Wang, Jianyong, Li, Jishun, Gurgenci, Hal, Veeraragavan, Ananthanarayanan, Kang, Xin and Hooman, Kamel<br>(2019) Applied Thermal Engineering, 159 113922. https://doi.org/10.1016/j.applthermaleng.2019.113922 |
| **P31 Power Systems** | Effect of cooling system design on the performance of the recompression CO2 cycle for concentrated solar power application<br>Ehsan, M. Monjurul, Duniam, Sam, Li, Jishun, Guan, Zhiqiang, Gurgenci, Hal and Klimenko, Alexander<br>(2019) Energy, 180 480-494. https://doi.org/10.1016/j.energy.2019.05.108 |
| **P31 Power Systems** | A computationally derived heat transfer correlation for in-tube cooling turbulent supercritical CO2<br>Wang, Jianyong, Guan, Zhiqiang, Gurgenci, Hal, Veeraragavan, Ananthanarayanan, Kang, Xin and Hooman, Kamel<br>(2019) International Journal of Thermal Sciences, 138 190-205. https://doi.org/10.1016/j.ijthermalsci.2018.12.045 |
| **P31 Power Systems** | Numerical investigation of the influence of local effects on the transient start-up process of natural draft dry cooling towers in dispatchable power plants<br>Dong, Peixin, Li, Xiaoxiao, Sun, Yubiao, Hooman, Kamel, Guan, Zhiqiang, Dai, Yuchen and Gurgenci, Hal<br>(2019) International Journal of Heat and Mass Transfer, 133 166-178. https://doi.org/10.1016/j.ijheatmasstransfer.2018.12.066 |
| **P31 Power Systems** | Search for optimum renewable mix for Australian off-grid power generation<br>Balaji, Vishak and Gurgenci, Hal<br>(2019) Energy, 175 1234-1245. https://doi.org/10.1016/j.energy.2019.03.089 |
| **P31 Power Systems** | Spray cooling system design and optimization for cooling performance enhancement of natural draft dry cooling tower in concentrated solar power plants<br>Sun, Yubiao, Guan, Zhiqiang, Gurgenci, Hal, Wang, Jianyong, Dong, Peixin and Hooman, Kamel<br>(2019) Energy, 168 273-284. https://doi.org/10.1016/j.energy.2018.11.111 |
| **P31 Power Systems** | A review of the crosswind effect on the natural draft cooling towers<br>Li, Xiaoxiao, Gurgenci, Hal, Guan, Zhiqiang, Wang, Xurong and Xia, Lin (2018) A review of the crosswind effect on the natural draft cooling towers. Applied Thermal (2019) Engineering, 150 250-270. https://doi.org/10.1016/j.applthermaleng.2018.12.147 |
| **P31 Power Systems** | The crosswind effects on the start-up process of natural draft dry cooling towers in dispatchable power plants<br>Dong, Peixin, Li, Xiaoxiao, Hooman, Kamel, Sun, Yubiao, Li, Jishun, Guan, Zhiqiang and Gurgenci, Hal<br>(2019) International Journal of Heat and Mass Transfer, 135 950-961. https://doi.org/10.1016/j.ijheatmasstransfer.2019.02.039 |
| **P41 Solar bubble receiver** | Preliminary evaluation of a novel solar bubble receiver for heating a gas<br>Mehdi Jafarian, Mohammad Reza Abdollahi, Graham Nathan<br>(2019) Solar energy, 182 (2019), 264-277. https://doi.org/10.1016/j.solener.2019.02.027 |
| **P42 Solar Fuels** | Investigation of Phosphine Ligand Protected Au13 Clusters on Defect Rich Titania<br>Gowri Krishnan, Namsoon Eom, Ryan M. Kirk, Vladimir B. Golovko, Gregory F. Metha, Gunther G. Andersson<br>(2019) J. Phys. Chem. C 123 (2019) 6642-6649. https://doi.org/10.1021/acs.jpcc.9b00083 |
| **P4x xxx** | A solar fuel plant via supercritical water gasification integrated with Fischer–Tropsch synthesis: steady-state modelling and techno-economic assessment<br>Alirez Rahbari, Ali Shirazi, Mahesh B. Venkataraman, JohnPye<br>(2019) Energy Conversion and Management 184 (2019) 636–648. https://doi.org/10.1016/j.enconman.2019.01.033 |

# ASTRI Journal publications

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| Research Area | Publication Title + Authors + Full Citation + DOI |
|---|---|
| P4x xxx | A solar fuel plant via supercritical water gasification integrated with Fischer–Tropsch synthesis: system-level dynamic simulation and optimisation<br>Ali Shirazi, Alireza Rahbari, Charles-Alexis Asselineau, John Pye<br>(2019) Energy Conversion and Management 192 (2019) 71–87. https://doi.org/10.1016/j.enconman.2019.04.008 |
| P4x xxx | Modelling of a 50 $MW_{th}$ on-sun reactor for SCWG of algae: Understanding the design constraints<br>Mahesh B. Venkataraman, Charles-Alexis Asselineau, Alireza Rahbari, and John Pye<br>(2019) AIP Conference Proceedings 2126 (2019), 180017. SolarPACES PDF |
| P42 xxx | System-level simulation of a solar-driven liquid fuel production plant via gasification-Fischer–Tropsch route<br>Ali Shirazi, Alireza Rahbari, and John Pye<br>(2019) AIP Conference Proceedings 2126 (2019), 180016. https://doi.org/10.1063/1.5117696 |
| P43 xxx | On the effect of cold-rolling on the corrosion of SS316L alloy in a molten carbonate salt<br>Madjid Sarvghad, Ondrej Muránsky, Theodore A.Steinberg, James Hester, Michael R.Hill, Geoffrey Will.<br>(2019) Solar Energy Materials and Solar Cells. Volume 202, November 2019, 110136. https://doi.org/10.1016/j.solmat.2019.110136 |
| P51 Advanced Materials | Corrosion testing under inert atmosphere with stainless steel crucibles<br>Bell, S., Will, G., & Steinberg, T<br>(2019) AIP Conference Proceedings 2126, 200004. Paper presented at the SolarPACES, Casablanca, Morocco. https://aip.scitation.org/doi/abs/10.1063/1.5117719 |
| P51 Advanced Materials | Damage analysis of 601 nickel superalloy in eutectic Na2CO3/NaCl molten salt under isothermal and thermal cycling conditions<br>Bell, S., Lippiatt, K., Steinberg, T., & Will, G.<br>(2019) Solar Energy, 191, 637-646. https://doi.org/10.1016/j.solener.2019.09.030 |
| P51 Advanced Materials | Corrosion testing under inert atmosphere with stainless steel crucibles<br>Bell, S., Will, G., & Steinberg, T<br>(2019) AIP Conference Proceedings 2126, 200004. Paper presented at the SolarPACES, Casablanca, Morocco. https://aip.scitation.org/doi/abs/10.1063/1.5117719 |
| P52 Operating + Maintenance Technologies | Optimizing Maintenance Staffing for a CSP plant<br>H. Truong-Ba, M. E. Cholette, G. Manzolini, R. Wang, and T. Steinberg<br>(2019) Proceedings of the Asia Pacific Solar Research Conference 2019. DOI |
| P52 Operating + Maintenance Technologies | Optimization of cleaning strategies for heliostat fields in solar tower plants<br>Picotti, G., Moretti, L., Cholette, M.E., Binotti, M., Simonetti, R., Martelli, E., Steinberg, T.A., Manzolini, G.<br>(2020) Sol. Energy 204, 501–514, 2020. https://doi.org/10.1016/j.solener.2020.04.032 |
| P52 Operating + Maintenance Technologies | In-situ reflectivity monitoring of heliostats using calibration cameras<br>Ruizi Wang, Pietro Borghesani, Michael E. Cholette, Benjamin Duck, Lin Ma, Theodore A. Steinberg<br>(2019) AIP Conference Proceedings. 2019; 2126:030062. https://doi.org/10.1063/1.5117574 |
| P52 Operating + Maintenance Technologies | Modelling the soiling of heliostats: Assessment of the optical efficiency and impact of cleaning operations<br>Picotti G, Binotti M, Cholette ME, Borghesani P, Manzolini G, Steinberg TA<br>(2019) AIP Conference Proceedings 2126, 030043. https://doi.org/10.1063/1.5117555 |

# ASTRI Journal publications

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| Research Area | Publication Title + Authors + Full Citation + DOI |
|---|---|
| P21 High Temperature Thermal Storage | A review of numerical modelling of high-temperature phase change material composites for solar thermal energy storage<br>Liu, Ming; Sun, Yanping; Bruno, Frank<br>(2020) Journal of Energy Storage; 29: 101378. https://doi.org/10.1016/j.est.2020.101378 |
| P21 High Temperature Thermal Storage | Influence of cascaded graphite foams on thermal performance of high temperature phase change material storage systems<br>Opolot, Michael; Zhao, Chunrong; Liu, Ming; Mancin, Simone; Bruno, Frank; Hooman, Kamel<br>(2020) Applied Thermal Engineering; In Press. https://doi.org/10.1016/j.applthermaleng.2020.115618 |
| P21 High Temperature Thermal Storage | Numerical study of melting performance enhancement for PCM in an annular enclosure with internal-external fins and metal foams<br>Zhao, Chunrong; Opolot, Michael; Liu, Ming; Bruno, Frank; Mancin, Simone; Hooman, Kamel<br>(2020) International Journal of Heat and Mass Transfer 150 (2020); 119348. https://doi.org/10.1016/j.ijheatmasstransfer.2020.119348 |
| P21 High Temperature Thermal Storage | Numerical modeling of inward and outward melting of high temperature PCM in a vertical cylinder<br>Soheila Riahi, Wasim Y Saman, Frank Bruno, N.H.S. Tay<br>(2016) AIP Conference Proceedings, 2016. 1734(1): p. 050039. https://doi.org/10.1063/1.4949137 |
| P21 High Temperature Thermal Storage | Numerical Study of a Two Pass Shell and Tube Latent Heat Storage System<br>Soheila Riahi, Wasim Y. Saman, Robert de Boer, Frank Bruno, Simon Smeding, Ivar de Visser<br>(2018) AIP Conference Proceedings 2033, 090023. https://doi.org/10.1063/1.5067117 |
| P21 High Temperature Thermal Storage | Design of sensible and latent heat thermal energy storage systems for concentrated solar power plants: Thermal performance analysis<br>Ming Liu, Soheila Riahi, Rhys Jacob, Martin Belusko, Frank Bruno<br>(2020) Renewable Energy 151 (2020) 1286-1297. https://doi.org/10.1016/j.renene.2019.11.115 |
| P31 Power Systems | A comparison of three methodological approaches for meanline design of supercritical CO2 radial inflow turbines<br>Lee, Sangkyoung and Gurgenci, Hal<br>(2020) Energy Conversion and Management, 206 112500. https://doi.org/10.1016/j.enconman.2020.112500 |
| P31 Power Systems | A comprehensive thermal assessment of dry cooled supercritical CO2 power cycles<br>Monjurul Ehsan, M., Duniam, Sam, Li, Jishun, Guan, Zhiqiang, Gurgenci, Hal and Klimenko, Alexander<br>(2020) Applied Thermal Engineering. https://doi.org/10.1016/j.applthermaleng.2019.114645 |
| P31 Power Systems | A comprehensive review on numerical approaches to simulate heat transfer of turbulent supercritical CO2 flows<br>Wang, Jianyong, Guan, Zhiqiang, Gurgenci, Hal, Sun, Yubiao and Hooman, Kamel<br>(2020) Numerical Heat Transfer, Part B: Fundamentals. https://doi.org/10.1080/10407790.2020.1720440 |
| P42 Solar Fuels | Activation of Water-Splitting Photocatalysts by Loading with Ultrafine Rh–Cr Mixed-Oxide Cocatalyst Nanoparticles<br>W. Kurashige, Y. Mori, S. Ozaki, M. Kawachi, S. Hossain, T. Kawawaki, C. Shearer, A. Iwase, G.F. Metha, S. Yamazoe, A. Kudo, Y. Negishi<br>(2020) Angewandte Chemie; A Journal of the German Chemical Society. 59, 7076-7082. https://doi.org/10.1002/anie.201916681 |
| P42 Solar Fuels | Gas Phase Photocatalytic Water Splitting of Moisture in Ambient Air: Toward Reagent-free Hydrogen Production<br>C. Shearer, T. Hisatomi, K.Domen, G.F. Metha |

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|---|---|
| | (2020) Journal of Photochemistry and Photobiology A: Chemistry: https://doi.org/10.1016/j.jphotochem.2020.112757 |
| **P42 Solar Fuels** | Metal Clusters on Semiconductor Surfaces and Application in Catalysis with a Focus on Au and Ru<br>Liam Howard-Fabretto, Gunther G. Andersson<br>(2020) Advanced Materials., n/a, 1904122. https://doi.org/10.1002/adma.201904122 |
| **P51 Advanced Materials** | Review of the solubility, monitoring, and purification of impurities in molten salts for energy storage in concentrated solar power plants<br>Teng-Cheong Ong, Madjid Sarvghad, Kaleb Lippiatt, Lewis Griggs, Hollie Ryan, Geoffrey Will and Theodore A. Steinberg<br>(2020) Renewable and Sustainable Energy Reviews, 131 (2020) 110006. https://doi.org/10.1016/j.rser.2020.110006 |
| **P14**<br>**Particle receiver** | Particle residence time distributions in a vortex-based solar particle receiver-reactor: An experimental, numerical and theoretical study<br>Dominic Davis, Maurizio Troiano, Alfonso Chinnici, Woei Saw, Timothy Lau, Roberto Solimene, Piero Salatino, Graham Nathan<br>(2020) Chemical Engineering Science, 214, (2020), 115421. https://doi.org/10.1016/j.ces.2019.115421 |