ASTRI Journal publications

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Objective: to undertake highly innovative and internationally competitive research with a strategic focus on CST technologies that will lead to breakthroughs in the cost of solar energy

ASTRI Ref	Research Area	Publication Title + Authors + Full Citation + Link
J000	P22 PCM storage	Review on storage materials and thermal performance enhancement techniques for high temperature phase change thermal storage systems. (2012) Ming Liu, Wasim Saman, Frank Bruno. Renewable and Sustainable Energy Reviews 16 May (2012) 2118– 2132. DOI: 10.1016/j.rser.2012.01.020
J001*	P31 sC02 systems - Power blocks	Dynamic characteristics of a direct-heated supercritical carbon-dioxide Brayton cycle in a solar thermal power plant. (2013) Singh, R., Miller, S.A., Rowlands, A.S., Jacobs, P.A. Energy 50, February (2013) 194-204. http://dx.doi.org/10.1016/j.energy.2012.11.029
J002*	P31 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. (2013) Singh, R., Miller, S.A., Rowlands, A.S. Energy 55 April (2013) 1025-1032. http://dx.doi.org/10.1016/j.energy.2013.03.049
J004	P11 Receiver Scoping	Heliostat cost reduction – where to now? (2014) Joe Coventry, John Pye. Energy Procedia (2014). http://dx.doi.org/10.1016/j.egypro.2014.03.007
J001	P31 sC02 systems - Power blocks	Supercritical CO2 cycles offer experience curve opportunity to CST in remote area markets. (2014) Hal Gurgenci. Energy Procedia 2014. http://dx.doi.org/10.1016/j.egypro.2014.03.125
J006	P31 sC02 systems - Power blocks	Influence of ambient conditions and water flow on the performance of pre-cooled natural draft dry cooling towers. (2014) Suoying He, Zhiqiang Guan, Hal Gurgenci, Ingo Jahn, Yuanshen Lu, Abdullah M. Alkhedhair. Applied Thermal Engineering, Volume 66, Issues 1–2, May (2014), Pages 621-631, ISSN 1359-4311. http://dx.doi.org/10.1016/j.applthermaleng.2014.02.070
J007	P31 sC02 systems - Power blocks	Experimental study of film media used for evaporative pre-cooling of air. (2014) Suoying He, Zhiqiang Guan, Hal Gurgenci, Kamel Hooman, Yuanshen Lu, Abdullah M. Alkhedhair, Energy Conversion and Management, Volume 87, November (2014), Pages 874-884, ISSN 0196-8904. http://dx.doi.org/10.1016/j.enconman.2014.07.084
J008	P31 sC02 systems - Power blocks	Theoretical and experimental studies on a solid containing water droplet. (2014) M.H. Sadafi, I. Jahn, A.B. Stilgoe, K. Hooman. International Journal of Heat and Mass Transfer, Volume 78, November (2014), Pages 25-33, ISSN 0017-9310. http://dx.doi.org/10.1016/j.ijheatmasstransfer.2014.06.064
J009	P31 sC02 systems - Power blocks	The influence of windbreak wall orientation on the cooling performance of small natural draft dry cooling towers. (2014) Lu, Y.S.,Gurgenci, H., Guan, Z., and He, S. International Journal of Heat and Mass Transfer, Volume 79, December 2014, Pages 1059–1069. http://dx.doi.org/10.1016/j.ijheatmasstransfer.2014.09.012
J019	P11 Receiver Scoping	Fourier sampling of sun path for applications in solar energy. (2015) V. Grigoriev, M. Blanco, C. Corsi. American Institute of Physics. http://dx.doi.org/10.1063/1.4949032

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ASTRI Ref	Research Area	Publication Title + Authors + Full Citation + Link
J020	P11 Receiver Scoping	Effect of heliostat design wind speed on the levelised cost of electricity from concentrating solar thermal power tower plants. (2015) Emes, M. J., M. Arjomandi and G. J. Nathan. Solar Energy 115(0): 441-451. http://dx.doi.org/10.1016/j.solener.2015.02.047
J018	P12 Heliostat scoping	A review of Sodium receiver technologies for central receiver solar power plants. (2015) J. Coventry, C. Andraka, J. Pye, M. Blanco, J. Fisher. Solar Energy, 122, 749–762. http://dx.doi.org/10.1016/j.solener.2015.09.023
J050	P12 Heliostat scoping	A Novel Solar Expanding-Vortex Particle Reactor: Influence of Vortex Structure on Particle Residence Times and Trajectories. (2015) Alfonso Chinnici, Maziar Arjomandi, Zhao Feng Tian, Zhao Lu, Graham Jerrold Nathan. Solar Energy - Volume 122, December 2015, Pages 58–75. http://dx.doi.org/10.1016/j.solener.2015.08.017
J005	P22 PCM storage	Impact of the heat transfer fluid in a flat plate phase change thermal storage unit for concentrated solar tower plants. (2015) Ming Liu, Martin Belusko, N.H. Steven Tay, Frank Bruno. Solar Energy, Volume 101, March (2014), Pages 220-231, ISSN 0038-092X. http://dx.doi.org/10.1016/j.solener.2013.12.030
J013	P22 PCM storage	Review on shell materials used in the encapsulation of phase change materials for high temperature thermal energy storage. (2015) Rhys Jacob, Frank Bruno. Renewable and Sustainable Energy Reviews 48(0): 79-87. https://doi.org/10.1016/j.rser.2015.03.038
J014	P22 PCM storage	Determination of thermo-physical properties and stability testing of high-temperature phase-change materials for CSP applications. (2015) Liu, M., J. C. Gomez, C. S. Turchi, N. H. S. Tay, W. Saman and F. Bruno. Solar Energy Materials and Solar Cells 139(0): 81-87. http://dx.doi.org/10.1016/j.solmat.2015.03.014
J026	P22 PCM storage	Investigation of Cascaded Shell and Tube Latent Heat Storage Systems for Solar Tower Power Plants. (2015) Liu M., Tay N.H.S., Belusko M., Bruno F. Energy Procedia, 69, pp 913-924, 2015. http://dx.doi.org/10.1016/j.egypro.2015.03.175
J027	P22 PCM storage	Effective tube-in-tank PCM thermal storage for CSP applications, Part 1: Impact of tube configuration on discharging effectiveness. (2015) Belusko M, Tay N.H.S., Liu M., Bruno F. Solar Energy. http://dx.doi.org/10.1016/j.solener.2015.09.042
J028	P22 PCM storage	Effective tube-in-tank PCM thermal storage for CSP applications, Part 2: Parametric assessment and impact of latent fraction. (2015) Belusko M, Tay N.H.S., Liu M., Bruno F. Solar Energy. http://dx.doi.org/10.1016/j.solener.2015.09.034
J032*	P22 PCM storage	Review on concentrating solar power plants and new developments in high temperature thermal energy storage technologies. (2015) Liu, M., Steven Tay, N.H., Bell, S., Belusko, M., Jacob, R., Will, G., Saman, W., Bruno, F. Renewable and Sustainable Energy Reviews, 53, pp. 1411-1432. Cited 1 time. http://dx.doi.org/10.1016/j.rser.2015.09.026
J090*	P22	Effective tube-in-tank PCM thermal storage for CSP applications, Part 2: Parametric assessment and impact of latent fraction.

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ASTRI Ref	Research Area	Publication Title + Authors + Full Citation + Link
	PCM storage	(2015) M Belusko, NHS Tay, M Liu, F Bruno. Solar Energy, Volume 139, 1 December 2016, Pages 744-756. https://doi.org/10.1016/j.solener.2015.09.034
J092	P22 PCM storage	Effective tube-in-tank PCM thermal storage for CSP applications, Part 1: Impact of tube configuration on discharging effectiveness. (2015) M Belusko, NHS Tay, M Liu, F Bruno. Solar Energy, Volume 139, 1 December 2016, Pages 733-743. https://doi.org/10.1016/j.solener.2015.09.042
J010	P31 sC02 systems - Power blocks	Experimental study of the application of two trickle media for inlet air pre-cooling of natural draft dry cooling towers. (2015) Suoying He, Zhiqiang Guan, Hal Gurgenci, Kamel Hooman, Yuanshen Lu, Abdullah M. Alkhedhair. Energy Conversion and Management, Volume 89, 1 January 2015, Pages 644-654, ISSN 0196-8904. http://dx.doi.org/10.1016/j.enconman.2014.10.031
J011	P31 sC02 systems - Power blocks	A theoretical model with experimental verification for heat and mass transfer of saline water droplets. (2015) M.H. Sadafi, I. Jahn, A.B. Stilgoe, K. Hooman. International Journal of Heat and Mass Transfer, Volume 81, February 2015, Pages 1-9, ISSN 0017-9310. http://dx.doi.org/10.1016/j.ijheatmasstransfer.2014.10.005
J012	P31 sC02 systems - Power blocks	Water Spray For Pre-Cooling Of Inlet Air For Natural Draft Dry Cooling Towers – Experimental Study. (2015) Abdullah Alkhedhair, Zhiqiang Guan, Ingo Jahn, Hal Gurgenci, Suoying He. International Journal of Thermal Sciences. http://dx.doi.org/10.1016/j.ijthermalsci.2014.11.029
J015	P31 sC02 systems - Power blocks	Cooling performance of solid containing water for spray assisted dry cooling towers. (2015) Sadafi, M. H., I. Jahn and K. Hooman. Energy Conversion and Management 91(0): 158-167. http://dx.doi.org/10.1016/j.enconman.2014.12.005
J022	P31 sC02 systems - Power blocks	A review of wetted media with potential application in the pre-cooling of natural draft dry cooling towers. (2015) He, S., H. Gurgenci, Z. Guan, X. Huang and M. Lucas. Renewable and Sustainable Energy Reviews 44(0): 407-422. http://dx.doi.org/10.1016/j.rser.2014.12.037
J023	P31 sC02 systems - Power blocks	Experimental study of crosswind effects on the performance of small cylindrical natural draft dry cooling towers. (2015) Lu, Y., Z. Guan, H. Gurgenci, K. Hooman, S. He and D. Bharathan. Energy Conversion and Management 91(0): 238-248. http://dx.doi.org/10.1016/j.enconman.2014.12.018
J040*	P31 sC02 systems - Power blocks	Numerical simulation of water spray in natural draft dry cooling towers with a new nozzle representation approach. (2015) Abdullah Alkhedhair, Ingo Jahn, Hal Gurgenci, Zhiqiang Guan, Suoying He, Yuanshen Lu. Applied Thermal Engineering, Volume 98, Pages 924-935. http://dx.doi.org/10.1016/j.applthermaleng.2015.10.118
J029	P32 Alternative Power Blocks	Robust design and optimisation of a radial turbine within a supercritical co2 solar Brayton cycle. (2015) Persky, Rodney., Sauret, Emilie., Beath, Andrew. Proceedings of the 11th World Congress on Structural and Multidisciplinary Optimisation (WCSMO), 7-12 June 2015, Sydney, Australia. https://eprints.qut.edu.au/84808/
J016	P41	Investigation of Roughness Periodicity on The Hydrophobic Properties of Surfaces.

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ASTRI Ref	Research Area	Publication Title + Authors + Full Citation + Link
	Operations + Maintenance	(2015) J. Toster and D.A.Lewis. Aust J. Chem (special issue invited), 68, 1228-1232. http://dx.doi.org/10.1071/CH15310
J017	P42 Solar Fuels	Storage capacities required for a solar thermal plant to avoid unscheduled reductions in output. (2015) Kueh, K., Nathan, G.J., Saw, W. Solar Energy, 118, 209–221. http://dx.doi.org/10.1016/j.solener.2015.04.040
J021	P42 Solar Fuels	Performance Assessment of Fischer–Tropsch Liquid Fuels Production by Solar Hybridized Dual Fluidized Bed Gasification of Lignite. (2015) Guo, P., P. J. van Eyk, W. L. Saw, P. J. Ashman, G. J. Nathan and E. B. Stechel. Energy & Fuels. http://dx.doi.org/10.1021/acs.energyfuels.5b00007
J024	P42 Solar Fuels	Fischer–Tropsch liquid fuel production by co-gasification of coal and biomass in a solar hybridized dual fluidized bed gasifier. (2015) P. Guo, W. Saw, P. J. van Eyk, P. J. Ashman, G. J. Nathan and E. B. Stechel. Energy Procedia. http://dx.doi.org/10.1016/j.egypro.2015.03.147
J025	P42 Solar Fuels	Solar hybridized coal-to-liquids via gasification in Australia: techno-economic assessment. (2015) W. Saw, A. Kaniyal, P. J. van Eyk, P. J. Ashman, G. J. Nathan and E. B. Stechel. Energy Procedia. http://dx.doi.org/10.1016/j.egypro.2015.03.158
J035*	P42 Solar Fuels	The challenges and opportunities for integration of solar syngas production with liquid fuel synthesis. (2015) James T. Hinkley, Robbie K. McNaughton, John Pye, Woei Saw and Ellen B. Stechel. SolarPACES 2015, AIP Conf. Proc. 1734, 120003-1–120003-8. http://dx.doi.org/10.1063/1.4949205
J030	P01 OEM	Impact of Cost Uncertainties and Solar Data Variations on the Economics of Central Receiver Solar Power Plants: An Australian Perspective. (2016) Meybodi M.A, Beath A.C. Renewable Energy 93 (2016) 510-524. http://dx.doi.org/10.1016/j.renene.2016.03.016
J055	P01 OEM	Current and Future Status of Concentrating Solar Power in Australia. (2016) Hinkley JT., Hayward JA., Beath AC., Brinsmead TS., Meybodi MA., Lovegrove KM. J. Japan Institute of Energy, 95, 2016, 227-234. https://www.researchgate_Current_and_Future_Status_of_Concentrating_Solar_Power_in_Australia
J049	P11 Receiver Scoping	Development of the ASTRI heliostat. (2016) 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. AIP Conf. Proc. 1734, 020005. http://dx.doi.org/10.1063/1.4949029
J051	P11 Receiver Scoping	A Novel Solar Expanding-Vortex Particle Reactor: Experimental and Numerical Investigation of the Iso-thermal Flow Field and Particle Deposition. (2016) Alfonso Chinnici, Maziar Arjomandi , Zhao Feng Tian, Graham Jerrold Nathan. Solar Energy - Volume 133, August 2016, Pages 451–464. http://dx.doi.org/10.1016/j.solener.2016.04.006
J052	P11 Receiver Scoping	Experimental and numerical investigation of the flow characteristics within a Solar Expanding-Vortex Particle Receiver-Reactor.

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		(2016) Alfonso Chinnici, Yunpeng Xue, Timothy CW Lau, Maziar Arjomandi, Graham J Nathan. Solar Energy - Volume 141, 1 January 2017, Pages 25–37. http://dx.doi.org/10.1016/j.solener.2016.11.020
J031	P22 PCM storage	Eutectic Na2CO3-NaCl salt: A new phase change material for high temperature thermal storage. (2016) Sun, Y., Liu, M., Bruno, F., Li, S. Jiang, Y. Solar Energy Materials and Solar Cells, 152, pp. 155-160. http://dx.doi.org/10.1016/j.solmat.2016.04.002
J060	P22 PCM storage	Embodied Energy and Cost of High Temperature Thermal Energy Storage Systems for use with Concentrated Solar Power Plants. (2016) Jacob R, Belusko M, Fernández A.I., Cabeza L.F., Saman W., Bruno F. Applied Energy vol. 180, 15 pp. 586-597, 2016. https://doi.org/10.1016/j.apenergy.2016.08.027
J086*	P22 PCM storage	Eutectic Na2CO3–NaCl salt: A new phase change material for high temperature thermal storage. (2016) Jiang, Y; Sun, Y; Liu, M; Bruno, F; Li, S. Solar Energy Materials & Solar Cells, Volume 152 (2016) 155-160. https://doi.org/10.1016/j.solmat.2016.04.002
J091*	P22 PCM storage	Embodied energy and cost of high temperature thermal energy storage systems for use with concentrated solar power plants. (2016) R Jacob, M Belusko, AI Fernández, LF Cabeza, W Saman, F Bruno. Applied Energy, Volume 180, 15 October 2016, Pages 586-597 https://doi.org/10.1016/j.apenergy.2016.08.027
J036	P31 sC02 systems - Power blocks	Parametric study on spray cooling system for optimising nozzle design with pre-cooling application in natural draft dry cooling towers. (2016) Abdullah Alkhedhair*, Ingo Jahn, Hal Gurgenci, Zhiqiang Guan, Suoying He. International Journal of Thermal Sciences, Volume 104, June 2016, Pages 448-460. http://dx.doi.org/10.1016/j.ijthermalsci.2016.02.004
J037*	P31 sC02 systems - Power blocks	Simulation of the UQ Gatton natural draft dry cooling tower. (2016) Xiaoxiao Li, Zhiqiang Guan, Hal Gurgenci, Yuanshen Lu, Suoying He. Applied Thermal Engineering, Volume 105, 25 July 2016, Pages 1013–1020. http://dx.doi.org/10.1016/j.applthermaleng.2016.03.041
J038*	P31 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. (2016) Yuanshen Lu, Zhiqiang Guan, Hal Gurgenci, Abdullah Alkhedhair, Suoying He. Applied Thermal Engineering, Volume 105, 25 July 2016, Pages 1000-1012. http://dx.doi.org/10.1016/j.applthermaleng.2016.03.175
J039	P31 sC02 systems - Power blocks	Design of Solar Enhanced Natural Draft Dry Cooling Tower for Solar Thermal Power Plants. (2016) Guan, Zhiqiang; Gurgenci, Hal; Zou, Zheng. 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
J041	P31 sC02 systems - Power blocks	An investigation on spray cooling using saline water with experimental verification. (2016) M.H. Sadafi., S. González Ruiz., M.R. Vetrano., I. Jahn., J. van Beeck., J.M. Buchlin., K. Hooman. Energy Conversion and Management, Volume 108 (2016), Pages 336–347. http://dx.doi.org/10.1016/j.enconman.2015.11.025
J042	P31 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. (2016) Odabaee, Mostafa, Sauret, Emilie and Hooman, Kamel. Applied Mechanics and Materials, (2016) 846 85-90.

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ASTRI Ref	Research Area	Publication Title + Authors + Full Citation + Link
		http://dx.doi.org/10.4028/www.scientific.net/AMM.846.85
J043	P31 sC02 systems - Power blocks	Effect of operating conditions on the elastohydrodynamic performance of foil thrust bearings for supercritical CO2 cycles. (2016) Qin, K., Jahn, I., Jacobs, P. Journal of Engineering for Gas Turbines and Power, (2016) 139 4: 042505-1-042505-10. https://gasturbinespower.asmedigitalcollection.asme.org/article.aspx?articleid=2554119
J044*	P31 sC02 systems - Power blocks	Nozzle arrangement effect on cooling performance of saline water spray cooling. (2016) Sadafi, M. H., Jahn, I., Hooman, K. Applied Thermal Engineering: Applied Thermal Engineering, Volume 105, 25 July 2016, Pages 1061–1066. http://dx.doi.org/10.1016/j.applthermaleng.2016.01.078
J045*	P31 sC02 systems - Power blocks	The influence of real gas effects on the performance of supercritical CO 2 dry gas seals. (2016) Zakariya, M. F., Jahn, I. H. J. Tribology International, Volume 102, October 2016, Pages 333–347. http://dx.doi.org/10.1016/j.triboint.2016.05.038
J046*	P31 sC02 systems - Power blocks	On the Influence of Low-power Laser Source on the Evaporation of Single Droplets: Experimental and Numerical Approaches. (2016) Sadafi, M. H., Ruiz, S. G., Vetrano, M. R., Beeck, van J., Jahn, I., Buchlin, J. M., Hooman, K. 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
J047*	P31 sC02 systems - Power blocks	Development of a Computational Tool to Simulate Foil Bearings for Supercritical CO2 Cycles. (2016) Qin, K., Jahn, I. H., Gollan, R. J., Jacobs, P. A. Journal of Engineering for Gas Turbine and Power, 138 (9): 092503-1-092503-19. http://dx.doi.org/10.1115/1.4032740
J048*	P31 sC02 systems - Power blocks	Development of a fluid-structure model for gas-lubricated bump-type foil thrust bearings. (2016) Qin, Kan, Jahn, Ingo and Jacobs, Peter. Applied Mechanics and Materials, 846 169-175. http://dx.doi:10.4028/www.scientific.net/AMM.846.169
J067	P31 sC02 systems - Power blocks	Performance enhancement for the natural draft dry cooling tower under crosswind condition by optimizing the water distribution. (2016) X. Li, L. Xia, H. Gurgenci, Z. Guan. Int. J. Heat Mass Transfer, 107 (2017) 271-280. http://dx.doi.org/10.1016/j.ijheatmasstransfer.2016.11.046
J070	P31 sC02 systems - Power blocks	Effect of Operating Conditions on the Elastohydrodynamic Performance of Foil Thrust Bearings for Supercritical CO2 Cycles. (2016) K Qin, IH Jahn, PA Jacobs. 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
J033	P41 Operations + Maintenance	A Case Study on Parameters Influencing Dust Accumulation on CSP Reflectors. (2016) Selene Pennetta, Francesco Anglani, John Barry and Shengzhe Yu. Journal of Energy and Power Engineering 10 (2016) 73-81 David Publishing. http://dx.doi.org/10.17265/1934-8975/2016.02.001
J034*	P42 Solar Fuels	Efficient Ceria Nanostructures for Enhanced Solar Fuel Production via High-Temperature Thermochemical Redox Cycles. (2016) Xiang Gao, Alejandro Vidal, Alicia Bayon, Roman Bader, Jim Hinkley, Wojciech Lipinski, Antonio Tricoli. Journal of Materials Chemistry A. http://dx.doi.org/10.1039/C6TA02187E

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ASTRI Ref	Research Area	Publication Title + Authors + Full Citation + Link
J054*	P01 OEM	A study on the impact of time resolution in solar data on the performance modelling of CSP plants. (2017) Mehdi Aghaei Meybodi, Lourdes Ramirez Santigosa , Andrew C. Beath. Renewable Energy 109 (2017) 551-563. http://dx.doi.org/10.1016/j.renene.2017.03.024
J074*	P01 OEM	Techno-economic Analysis of Supercritical Carbon Dioxide Power Blocks. (2017) Mehdi Aghaei Meybodi, Andrew Beath, Stephen Gwynn-Jones, Anand Veeraragavan, Hal Gurgenci, and Kamel Hooman. AIP Conference Proceedings 1850, 060001 (1-8), SolarPACES, Abu Dhabi, UAE, 11–14 October. https://doi.org/10.1063/1.4984409
J056*	P11 Receiver Scoping	Progress in heliostat development. (2017) Pfahl A., Coventry J., Röger M., Wolfertstetter F., Vásquez-Arango JF., Gross F., Arjomandi M., Schwarzbözl P., Geiger M., Liedke P. Solar Energy, Volume 152, August 2017, Pages 3-37. https://doi.org/10.1016/j.solener.2017.03.029
J057	P11 Receiver Scoping	Dish systems for CSP. (2017) Coventry J, Andraka C. Solar Energy, Volume 152, August 2017, Pages 140-170. https://doi.org/10.1016/j.solener.2017.02.056
J075	P11 Receiver Scoping	Effect of turbulence characteristics in the atmospheric surface layer on the peak wind loads on heliostats in stow position. (2017) Emes, Arjomandi, Ghanadi, Kelso. Solar Energy, Volume 157, 15 November 2017, Pages 284-297. https://doi.org/10.1016/j.solener.2017.08.031
J076	P11 Receiver Scoping	An investigation into the effect of aspect ratio on the heat loss from a solar cavity receiver. (2017) Lee, Jafarian, Ghanadi, Arjomandi. Solar Energy, Volume 149, June 2017, Pages 20-31. https://doi.org/10.1016/j.solener.2017.03.089
J053	P12 Heliostat scoping	Development of ASTRI high-temperature solar receivers. (2017) Joe Coventry, et al. AIP Conference Proceedings 1850, 030011 (2017). https://doi.org/10.1063/1.4984354
J058	P21 High Temperature Storage	High temperature solar thermochemical process for production of stored energy and oxygen based on CuO/Cu_2O redox reactions". (2017) Haseli, Jafarian, Nathan. Solar Energy, 2017, 153, pp 1-10 https://doi.org/10.1016/j.solener.2017.05.025
J059	P21 High Temperature Storage	Thermodynamic potential of molten copper oxide for high temperature solar energy storage and oxygen production. (2017) Jafarian, Arjomandi, Nathan. Applied Energy, 201, pp 69-83. https://doi.org/10.1016/j.apenergy.2017.05.049
J077*	P21 High Temperature Storage	Investigation of lithium sulphate for high temperature thermal energy storage. (2017) Bayon Sandoval, Alicia; Liu, Ming (Cherry); Bruno, Frank; Hinkley, Jim. SolarPACES, Abu Dhabi, UAE, 11–14 October 2016, AIP Conference Proceedings. 080005-1 080005-8, AIP Conference Proceedings 1850 (1), 080005, (2017). https://doi.org/10.1063/1.4984426

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ASTRI Ref	Research Area	Publication Title + Authors + Full Citation + Link
J078	P21 High Temperature Storage	Annual Performance of a Solar-Thermochemical Hydrogen Production Plant Based on CeO2 Redox Cycle. (2017) de la Calle Alonso, Alberto; Bayon Sandoval, Alicia. Linköping Electronic Conference Proceedings; 2017. 857-866. https://doi.org/10.3384/ecp17132857
J079*	P21 High Temperature Storage	Techno-economic assessment of solid-gas thermochemical energy storage systems for solar thermal power applications. (2017) A. Bayon, R. Badr, M. Jafarian, L. Fedunik-Hofman, Y. Sun, J. Hinkley, S. Miller, W. Lipinski. Energy, Volume 149, 15 April 2018, Pages 473-484. https://doi.org/10.1016/j.energy.2017.11.084
J061	P22* PCM storage	Comparative study of melting and solidification processes in different configurations of shell and tube high temperature latent heat storage system. (2017) Soheila Riahi, Wasim Y. Saman, Frank Bruno, Martin Belusko, N.H.S. Tay. Solar Energy, Volume 150, 2017, pp 363-374. https://doi.org/10.1016/j.solener.2017.04.061
J062	P22* PCM storage	Thermal stability of Na_2CO_3-Li_2CO_3 as a high temperature phase change material for thermal energy storage. (2017) Jiang, Y., Sun, Y., Bruno, F., Li, S. Thermochimica Acta, 2017, 650, pp. 88-94. https://doi.org/10.1016/j.tca.2017.01.002
J063	P22* PCM storage	A critical review of eutectic salt property prediction for latent heat energy storage systems. (2017) Raud, R., Jacob, R., Bruno, F., Will, G., Steinberg, T.A. Renewable and Sustainable Energy Reviews, 2017, 70, pp. 936-944. https://doi.org/10.1016/j.rser.2016.11.274
J064	P22 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. (2017) Riahi, S., Saman, W.Y., Bruno, F., Belusko, M., Tay, N.H.S. Applied Energy, 2017, 191, pp. 276-286. https://doi.org/10.1016/j.apenergy.2017.01.091
J065	P22 PCM storage	Comparative interaction of cold-worked versus annealed inconel 601 with molten carbonate salt at 450 °C. (2017) Sarvghad, M., Chenu, T., Will, G. Corrosion Science, 2017, 116, pp. 88-97. https://doi.org/10.1016/j.corsci.2017.01.004
J066	P22 PCM storage	Stress assisted oxidative failure of Inconel 601 for thermal energy storage. (2017) Sarvghad, M., Bell, S., Raud, R., Steinberg, T.A., Will, G. Solar Energy Materials and Solar Cells, 2017, 159, pp. 510-517. https://doi.org/10.1016/j.solmat.2016.10.008
J081	P22 PCM storage	A eutectic salt high temperature phase change material: Thermal stability and corrosion of SS316 with respect to thermal cycling. (2017) M Liu, S Bell, M Segarra, NHS Tay, G Will, W Saman, F Bruno. Materials and Solar Cells, Volume 170, October 2017, Pages 1-7 https://doi.org/10.1016/j.solmat.2017.05.047
J082*	P22 PCM storage	Design optimization method for tube and fin latent heat thermal energy storage systems. (2017) R Raud, ME Cholette, S Riahi, F Bruno, W Saman, G Will, TA Steinberg. Energy 134, 585-594, 2017 https://doi.org/10.1016/j.energy.2017.06.013
J083	P22 PCM storage	Numerical Study of Melting Process Of A High-temperature Phase Change Material Including Natural Convection And Turbulence. (2017) S Riahi, WY Saman, F Bruno, NHS Tay. International Journal of Computational Methods and Experimental Measurements, Volume 5 (2017), Issue 5, p9 https://doi.org/10.2495/CMEM-V5-N5-723-732

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ASTRI Ref	Research Area	Publication Title + Authors + Full Citation + Link
J084*	P22 PCM storage	Review on transportable phase change material in thermal energy storage systems. (2017) NHS Tay, M Liu, M Belusko, F Bruno. Renewable and Sustainable Energy Reviews, Volume 75, August 2017, Pages 264-277 https://doi.org/10.1016/j.rser.2016.10.069
J085	P22 PCM storage	Corrosion of steel alloys in molten NaCl + Na2SO4 at 700 °C for thermal energy storage. (2017) M. Sarvghad, G. Will, T.A. Steinberg. Solar Energy Materials and Solar Cells, 179 (2018) 207-216. https://doi.org/10.1016/j.solmat.2017.11.017
J087*	P22 PCM storage	Novel Na2SO4-NaCl-ceramic composites as high temperature phase change materials for solar thermal power plants (Part I). (2017) Jiang, Y; Sun, Y; Jacob, RD; Bruno, F; Li, S. Solar Energy Materials & Solar Cells, Volume 178 (2018) 155-160. https://doi.org/10.1016/j.solmat.2017.12.034
J088	P22 PCM storage	Development and experimental validation of a CFD model for PCM in a vertical triplex tube heat exchanger. (2017) S Almsater, A Alemu, W Saman, F Brun. Applied Thermal Engineering, Volume 116, April 2017, Pages 344. https://doi.org/10.1016/j.applthermaleng.2017.01.104
J089	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. (2017) M. Sarvghad, T.A. Steinberg, G. Will. Solar Energy Materials and Solar Cells, 170 (2017) 48-59. https://doi.org/10.1016/j.solmat.2017.05.063
J068	P31 sC02 systems - Power blocks	Full Scale Experimental Study of a Small Natural Draft Dry Cooling Tower for Concentrating Solar Thermal Power Plant. (2017) Xiaoxiao Li*, Sam Duniam, Hal Gurgenci, Zhiqiang Guan, Anand Veeraragavan Applied Energy, Volume 193, Pages 1-550 (1 May 2017). https://doi.org/10.1016/j.apenergy.2017.02.032
J069	P31 sC02 systems - Power blocks	Supercritical CO2 Radial Turbine Design Performance as a Function of Turbine Size Parameters. (2017) J Qi, T Reddell, K Qin, K Hooman, IHJ Jahn. Journal of Turbomachinery, Volume 139, Issue 8. Paper No: TURBO-16-1191. https://doi.org/10.1115/1.4035920
J093	P31 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. (2017) Duniam, S., et al. Applied Thermal Engineering, Volume 130, 5 February 2018, Pages 1070-1080. https://doi.org/10.1016/j.applthermaleng.2017.10.169
J094	P31 sC02 systems - Power blocks	Application of a wall function to simulate turbulent flows in foil bearings at high rotational speeds. (2017) Qin, K., R.J. Gollan, and I.H. Jahn. Tribology International, Volume 115, November 2017, Pages 546-556. https://doi.org/10.1016/j.triboint.2017.06.018
J095	P31 sC02 systems - Power blocks	Supercritical CO2 Radial Turbine Design Performance as a Function of Turbine Size Parameters. (2017) Jianhui Qi, Thomas Reddell, Kan Qin, Kamel Hooman, Ingo H. J. Jahn. Journal of Turbomachinery-J. Turbomach. Aug 2017, 139(8): 081008 (11 pages). Paper No: TURBO-16-1191. https://doi.org/10.1115/1.4035920
J097	P31	A review on the performance evaluation of natural draft dry cooling towers and possible improvements via inlet air spray cooling.

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	sC02 systems - Power blocks	(2017) Sun, Yubiao , Guan, Zhiqiang and Hooman, Kamel. Renewable and Sustainable Energy Reviews, Volume 79, November 2017, Pages 618-637 https://doi.org/10.1016/j.rser.2017.05.151
J098	P31 sC02 systems - Power blocks	Measurements of crosswind influence on a natural draft dry cooling tower for a solar thermal power plant. (2017) Li, Xiaoxiao, Gurgenci, Hal, Guan, Zhiqiang, Wang, Xurong and Duniam, Sam. Applied Energy, Volume 206, 15 November 2017, Pages 1169-1183 https://doi.org/10.1016/j.apenergy.2017.10.038
J099	P31 sC02 systems - Power blocks	A study on multi-nozzle arrangement for spray cooling system in natural draft dry cooling tower. (2017) Sun, Yubiao, Guan, Zhiqiang, Gurgenci, Hal, Li, Xiaoxiao and Hooman, Kamel. Applied Thermal Engineering, Volume 124, September 2017, Pages 795-814 https://doi.org/10.1016/j.applthermaleng.2017.05.157
J100*	P31 sC02 systems - Power blocks	Evaluation of Power Block Arrangements for 100MW Scale Concentrated Solar Thermal Power Generation Using Top-Down Design. (2016) Post, Alex; Beath, Andrew; Sauret, Emilie; Persky, Rodney. AIP Publishing; 2017. 1-8, SolarPACES 2016; 11-14 October 2016; Abu Dhabi, UAE https://doi.org/10.1063/1.4984382
J103	P22 PCM Storage	A numerical model for thermal energy storage systems utilising encapsulated phase change materials (2016) R. Jacob, W. Saman, F. Bruno. AIP Conference Proceedings 1734, 050020 (2016). https://doi.org/10.1063/1.4949118
J104	P32 Alternative Power Blocks	Preliminary and robust design analysis of a solar thermal power block. (2016) Persky, R., Sauret, E. Proceedings of the ASME Turbo Expo 2C (2016). https://doi.org/10.1115/GT2016-57172
J105	P22 PCM Storage	Geopolymer encapsulation of a chloride salt phase change material for high temperature thermal energy storage (2016) R. Jacob, N. Trout, R. Raud, S. Clarke, T. A. Steinberg, W. Saman, F. Brun. AIP Conference Proceedings 1734, 050021 (2016). https://doi.org/10.1063/1.4949119
J102	P11 Receiver Scoping	Experimental and numerical investigation of the flow characteristics within a Solar Expanding-Vortex Particle Receiver-Reactor. (2017) Alfonso Chinnici, Yunpeng Xue, Timothy Lau, Maziar Arjomandi, Graham Nathan. Solar Energy, Volume 141, 25-37 (2017) https://doi.org/10.1016/j.solener.2016.11.020
J106	P22 PCM Storage	Capital cost expenditure of high temperature latent and sensible thermal energy storage systems. (2017) R. Jacob, W. Saman, F. Bruno. AIP Conference Proceedings 1850, 080012 (2017). https://doi.org/10.1063/1.4984433
J108	P2x Storage	Corrosion of Inconel 601 in molten salts for thermal energy storage (2017) M. Sarvghad, G. Will, T.A. Steinberg. Solar Energy Materials and Solar Cells, 172 (2017) 220-229. https://doi.org/10.1016/j.solmat.2017.07.036
J109	P2x Storage	Investigation of Ligand-Stabilized Gold Clusters on Defect-Rich Titania. (2017) G. Krishnan, H. S. Al Qahtani, J. Li, Y. Yin, N. Eom, V. B. Golovko, G. F. Metha, G. G. Andersson. J. Phys. Chem. C 2017, 121, 50, 28007-28016. https://doi.org/10.1021/acs.jpcc.7b09514

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ASTRI Ref	Research Area	Publication Title + Authors + Full Citation + Link
J110	P2x Storage	Apparatus for the Investigation of High-Temperature, High-Pressure Gas-Phase Heterogeneous Catalytic and Photo-Catalytic Materials. (2017) J. F. Alvino, T. Bennett, R. Kler, Th. Nann, G. G. Andersson, G. F. Metha. Review of Scientific Instruments 88, 054101. https://doi.org/10.1063/1.4982350
J111	P2x Storage	Aggregation behavior of ligand-protected Au9 clusters on sputtered ALD TiO2. (2017) H.S. Al Qahtani, G. F. Metha, R. B. Walsh, V. B. Golovko, G. G. Andersson, and T. Nakayama. J. Phys. Chem. C, 2017, 121, 10781. https://doi.org/10.1016/j.applthermaleng.2019.01.042
J112	P32 Alternative Power Blocks	Loss models for on and off-design performance of radial inflow turbomachinery. (2017) Persky, R., Sauret, E. Applied Thermal Engineering, 150, pp.1066-1077 https://doi.org/10.1016/j.applthermaleng.2019.01.042
J107	P41 Operations + Maintenance	Optimal condition-based cleaning of solar power collectors. (2017) Ba, H. T., Cholette, M. E., Wang, R., Borghesani, P., Ma, L., & Steinberg, T. A. Solar Energy, 157, 762-777. https://doi.org/10.1016/j.solener.2017.08.076
J071*	P42 Solar Fuels	Apparatus for the Investigation of High-Temperature, High-Pressure Gas-Phase Heterogeneous Catalytic and Photo-Catalytic Materials. (2017) Jason Alvino, Trystan Bennet, Rantej Kler, Rohan Hudson, Julien Aupoil, Thomas Nann, Vladimir Golovko, Gunther Anderson, Greg Metha. Reviews of scientific instrumentation. http://dx.doi.org/10.1063/1.4982350
J072	P42 Solar Fuels	System optimization for Fischer-Tropsch liquid fuels production via solar hybridized dual fluidized bed gasification of solid fuels. (2017) Guo, Peijun, Saw, Woei, van Eyk, Philip, Stechel, Ellen, Ashman, Peter, Nathan, Graham. Energy Fuels, 2017, 31 (2), pp 2033–2043. https://doi.org/10.1021/acs.energyfuels.6b01755
J073	P42 Solar Fuels	Gasification reactivity and physiochemical properties of the chars from raw and torrefied wood, grape marc and macroalgae. (2017) Guo, Peijun, Saw, Woei, van Eyk, Philip, Stechel, Ellen, de Nys, Rocky, Ashman, Peter, Nathan, Graham.Energy Fuels, 2017, 31 (2), pp 2046–2059. https://doi.org/10.1021/acs.energyfuels.6b02215
J101	P42 Solar Fuels	Approaches to accommodate resource variability in the modelling of solar driven gasification processes for liquid fuels synthesis. (2017) Woei Saw, Peijun Guo, Philip van Eyk, Graham Nathan. Solar Energy, Volume 156, 1 November 2017, Pages 101-112 https://doi.org/10.1016/j.solener.2017.05.085
J113	P42 Solar Fuels	Thermodynamic modelling and solar reactor design for syngas production through SCWG of algae. (2017) M.B. Venkataraman, A. Rahbari, J. Pye. AIP Conference Proceedings 1850 (2017) 100017. https://doi.org/10.1063/1.4984474
J18001	P11 Receiver Scoping	Investigation of peak wind loads on tandem heliostats in stow position. (2018) Emes, Ghanadi, Arjomandi, Kelso. Solar Energy, Volume 121, 15 June 2018, Pages 548-558. https://doi.org/10.1016/j.renene.2018.01.080
J18002	P11	Experimental investigation of the effects of wind speed and yaw angle on heat losses from a heated cavity.

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ASTRI Ref	Research Area	Publication Title + Authors + Full Citation + Link
	Receiver Scoping	(2018) Ka Lok Lee, Alfonso Chinnici, Mehdi Jafarian, Maziar Arjomandi, Bassam Dally, Graham Nathan. Solar Energy, Volume 165, 1 May 2018, Pages 178-188. https://doi.org/10.1016/j.solener.2018.03.023
J18003	P22 PCM storage	Performance comparison of latent heat storage systems comprising plate fins with different shell and tube configurations. (2018) Soheila Riahi, Wasim Y Saman, Frank Bruno, Martin Belusko, N.H.S. Tay. Applied Energy, Volume 212, February 2018, Pages 1095-1106 https://doi.org/10.1016/j.apenergy.2017.12.109
J18004	P12 Sodium receivers	Development of high absorption, high durability coatings for solar receivers in CSP plants. (2018) Kaoru Tsuda, Yasushi Murakami, Juan F. Torres, Joe Coventry. AIP Conference Proceedings 2033, 040039. https://doi.org/10.1063/1.5067075
J18005	P12 Sodium receiver	Limits of the cylindrical absorber design for a sodium receiver. (2018) Charles-Alexis Asselineau, William Logie, John Pye, Joe Coventry. AIP Conference Proceedings 2033, 040006. https://doi.org/10.1063/1.5067042
J18006	P12 Sodium receiver	Exergy analysis of the focal-plane flux distribution of solar-thermal concentrators. (2018) Charles-Alexis Asselineau, Joe Coventry, John Pye. Applied Energy. Volume 222, 15 July 2018, Pages 1023-1032. https://doi.org/10.1016/j.apenergy.2018.04.027
J18007	P12 Sodium receiver	Thermoelastic stress in concentrating solar receiver tubes: A retrospect on stress analysis methodology, and comparison of salt and sodium. (2018) William R.Logie, John D.Pye, Joe Coventry. Solar Energy. Volume 160, 15 January 2018, Pages 368-379. https://doi.org/10.1016/j.solener.2017.12.003
J18008	P21 High temperature storage	Solar thermal hybrids for combustion power plant: A growing opportunity. (2018) Graham Nathan, Mehdi Jafarian, Bassam Dally, Woei Saw, Peter Ashman, Eric Hu, Aldo Steinfeld. Progress in Energy and Combustion Science, 64 (2018), 4-28. https://doi.org/10.1016/j.pecs.2017.08.002
J18009	P22 PCM storage	Corrosion of stainless steel 316 in eutectic molten salts for thermal energy storage. (2018) Madjid Sarvghad, Theodore A.Steinberg, Geoffrey Will. Solar Energy. Volume 172, Part 2, 15 September 2018, Pages 198-203. https://doi.org/10.1016/j.solener.2018.03.053
J18010	P22 PCM storage	High-Temperature Phase Change Material (PCM) Selection for Concentrating Solar Power Tower Applications. (2018) Teng-Cheong Ong, Elizabeth Graham, Geoffrey Will, Theodore A. Steinberg. Advanced Sustainable Systems. Volume3, Issue 2, February 2019, 1800131. https://doi.org/10.1002/adsu.201800131
J18011	P22 PCM storage	Optimized Salt Selection for Solar Thermal Latent Heat Energy Storage. (2018) Ralf Raud, Stuart Bell, Teng-Cheong Ong, Geoffrey Will, Theodore A. Steinberg. Advanced Sustainable Systems. Volume 2, Issue 11, November 2018, 1800074. https://doi.org/10.1002/adsu.201800074
J18012	P2x Storage	Thermo-economic analysis of high-temperature sensible thermal storage with different ternary eutectic alkali and alkaline earth metal chlorides. (2018) Gowtham Mohan, Mahesh Venkataraman, Judith Gomez-Vidal, Joe Coventry. Solar Energy. Volume 176, December 2018, Pages 350-357. https://doi.org/10.1016/j.solener.2018.10.008

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ASTRI Ref	Research Area	Publication Title + Authors + Full Citation + Link
J18013	P2x Storage	Performance of molten sodium vs. molten salts in a packed bed thermal energy storage. (2018) Klarissa Niedermeier, Luca Marocco, Jonathan Flesch, Gowtham Mohan, Joe Coventry, Thomas Wetzel. Applied Thermal Engineering. Volume 141, August 2018, Pages 368-377. https://doi.org/10.1016/j.applthermaleng.2018.05.080
J18014	P2x Storage	Assessment of a novel ternary eutectic chloride salt for next generation high-temperature sensible heat storage. (2018) Gowtham Mohan, Mahesh Venkataraman, Judith Gomez-Vidal, Joe Coventry. Energy Conversion and Management. Volume 167, 1 July 2018, Pages 156-164. https://doi.org/10.1016/j.enconman.2018.04.100
J18015	P2x Storage	Novel Na2SO4-NaCl-ceramic composites as high temperature phase change materials for solar thermal power plants (Part I). (2018) Yifeng Jiang, Yanping Sun, Rhys D. Jacob, Frank Bruno, Sean Li. Solar Energy Materials & Solar Cells. Volume 178, May 2018, Pages 74-83. https://doi.org/10.1016/j.solmat.2017.12.034
J18016	P22 PCM Storage	Dynamic Concept at University of South Australia. (2018) Nguan H. Steven Tay, Martin Belusko, Ming Liu, Frank Bruno. Book chapter - High Temperature Thermal Storage Systems Using Phase Change Materials, Chapter 3 2018, Pages 39-92. https://doi.org/10.1016/B978-0-12-805323-2.00003-5
J18017	P22 PCM Storage	Static Concept at University of South Australia. (2018) Nguan H. Steven Tay, Martin Belusko, Ming Liu, Frank Bruno. Book chapter - High Temperature Thermal Storage Systems Using Phase Change Materials, Chapter 7 2018, Pages 157-191. https://doi.org/10.1016/B978-0-12-805323-2.00007-2
J18018	P22 PCM Storage	Materials for Phase Change Material at High Temperature. (2018) Ming Liu, Ana Inés Fernández, Mercè Segarra. Book chapter - High Temperature Thermal Storage Systems Using Phase Change Materials, Chapter 8 2018, Pages 195-230. https://doi.org/10.1016/B978-0-12-805323-2.00008-4
J18019	P22 PCM Storage	Encapsulation of High-Temperature Phase Change Materials. (2018) Rhys Jacob, Wasim Saman, Frank Bruno. Book chapter - High Temperature Thermal Storage Systems Using Phase Change Materials, Chapter 9 2018, Pages 231-274. https://doi.org/10.1016/B978-0-12-805323-2.00009-6
J18020	P22 PCM Storage	Corrosion of AISI316 as containment materials for latent heat thermal energy storage systems based on carbonates. (2018) J. Gallardo-González, Mònica Martínez, Camila Barreneche, Ana Inés Fernández, Ming Liu, N.H. Steven Tay, Frank Bruno, Mercè Segarra. Solar Energy Materials and Solar Cells. Volume 186, November 2018, Pages 1-8. https://doi.org/10.1016/j.solmat.2018.06.003
J18021	P22 PCM Storage	Effect of inner coatings on the stability of chloride-based phase change materials encapsulated in geopolymers. (2018) Rhys Jacob, Ralf Raud, Neil Trout, Stuart Bell, Stephen Clarke, Geoffrey Will, Wasim Saman, Frank Bruno. Solar Energy Materials and Solar Cells. Volume 174, January 2018, Pages 271-276.

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		https://doi.org/10.1016/j.solmat.2017.09.016
J18022	P22 PCM Storage	Investigation into the behaviour of aluminium and steel under melt/freeze cyclic conditions. (2018) Rhys Jacob, Alexander Sibley, Martin Belusko, Ming Liu, Jamie Quinton, Gunter Andersson. Journal of Energy Storage. Volume 17, June 2018, Pages 249-260. https://doi.org/10.1016/j.est.2018.03.001
J18023	P22 PCM Storage	Economic Studies on High Temperature Phase Change Material Storage Systems. (2018) Rhys Jacob, Martin Belusko, Wasim Saman, Frank Bruno Book chapter - High Temperature Thermal Storage Systems Using Phase Change Materials. Chapter 11 2018, Pages 297-318. https://doi.org/10.1016/B978-0-12-805323-2.00011-4
J18024	P22 PCM Storage	Using thermal energy storage to replace natural gas in commercial/industrial applications. (2018) Rhys Jacob, Martin Belusko, Ming Liu, Wasim Saman, Frank Bruno. AIP Conference Proceedings 2033, 090015 (2018). https://doi.org/10.1063/1.5067109
J096	P31 sC02 systems - Power blocks	Computational investigations of heat transfer to supercritical CO2 in a large horizontal tube. (2018) Wang, Jianyong, Guan, Zhiqiang, Gurgenci, Hal, Hooman, Kamel, Veeraragavan, Anand and Kang, Xin. Energy Conversion and Management, Volume 157, 1 February 2018, Pages 536-548. https://doi.org/10.1016/j.enconman.2017.12.046
J18025	P31 Power Systems	Numerical study on cooling heat transfer of turbulent supercritical CO2 in large horizontal tubes (2018) Wang, Jianyong, Guan, Zhiqiang, Gurgenci, Hal, Veeraragavan, Ananthanarayanan, Kang, Xin, Sun, Yubiao and Hooman, Kamel (2018) Numerical study on cooling heat transfer of turbulent supercritical CO2 in large horizontal tubes. International Journal of Heat and Mass Transfer, 126 B: 1002-1019. https://doi.org/10.1016/j.ijheatmasstransfer.2018.06.070
J18026	P31 Power Systems	The transient start-up process of natural draft dry cooling towers in dispatchable thermal power plants (2018) Dong, Peixin, Li, Xiaoxiao, Guan, Zhiqiang and Gurgenci, Hal (2018) The transient start-up process of natural draft dry cooling towers in dispatchable thermal power plants. International Journal of Heat and Mass Transfer, 123 201-212. https://doi.org/10.1016/j.ijheatmasstransfer.2018.02.114
J18027	P31 Power Systems	Investigations on the influence of nozzle arrangement on the pre-cooling effect for the natural draft dry cooling tower (2018) Sun, Yubiao, Guan, Zhiqiang, Gurgenci, Hal, Hooman, Kamel and Li, Xiaoxiao (2018) Investigations on the influence of nozzle arrangement on the pre-cooling effect for the natural draft dry cooling tower. Applied Thermal Engineering, 130 979-996. https://doi.org/10.1016/j.applthermaleng.2017.10.171
J18028	P32 Alternative Power Blocks	Assessment of turbine performance variability in response to power block design decisions for SF6 and CO2 solar thermal power plants. (2018) Rodney Persky, Emilie Sauret. Energy Conversion and Management. Volume 169, 1 August 2018, Pages 255-265. https://doi.org/10.1016/j.enconman.2018.04.080
J18029	P41 Operations + Maintenance	Soiling of solar collectors–Modelling approaches for airborne dust and its interactions with surfaces. (2018) G. Picotti, P. Borghesani, M.E. Cholette, G. Manzolini. Renewable and Sustainable Energy Reviews, 81(P2), 2343-2357. https://doi.org/10.1016/j.rser.2017.06.043

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J18030	P41 Operations + Maintenance	Development and experimental validation of a physical model for the soiling of mirrors for CSP industry applications (2018) G. Picottia, P. Borghesani, G. Manzolini, M.E.Cholette, R. Wang. Sol Energy 2018, 173:1287–305. https://doi.org/10.1016/j.solener.2018.08.066
J18031	P42 Solar Fuels	Energy and exergy analysis of concentrated solar supercritical water gasification of algal biomass (2018) A. Rahbari, M.B. Venkataraman, J. Pye. Applied Energy, 228 (2018) 1669–1682. https://doi.org/10.1016/j.apenergy.2018.07.002
J18032	P42 Solar Fuels	Ash-bed material interaction during combustion and steam gasification of Australian agricultural residues. (2018) Zimeng He, Daniel Lane, Woei Saw, Philip van Eyk, Graham Nathan, Peter Ashman. Energy and Fuels, 32(4) (2018), 4278-4290. https://doi.org/10.1021/acs.energyfuels.7b03129
J18033	P43 Materials	Materials compatibility for the next generation of Concentrated Solar Power plants (2018) Madjid Sarvghad, Salar Delkasar Maher, David Collard, Matthew Tassan, Geoffrey Will, Theodore A.Steinberg. Energy Storage Materials. https://doi.org/10.1016/j.ensm.2018.02.023
J18034	P43 Materials	Testing and Evaluating of Structural Materials for CSP Applications (2018) Madjid Sarvghad, Geoffrey Will, Theodore A Steinberg. ECS Transactions, Volume 85, 233rd ECS Meeting, Seattle, WA, May 13 – May 17, 2018, Number 2. DOI: 10.1149/08502.0023ecst
J19001	P11 Heliostats	Design of efficient stamped mirror facets using topography optimisation (2019) Nicholas Rumsey-Hill, Johannes Pottas, Joe Coventry. AIP Conference Proceedings 2126, 030048. https://doi.org/10.1063/1.5117560
J19002	P11 Heliostats	A method for the calculation of the design wind loads on heliostats. (2019) Matthew Emes, Azadeh Jafari, Farzin Ghanadi, Maziar Arjomandi. AIP Conference Proceedings 2126, 030020 (2019). https://doi.org/10.1063/1.5117532
J19003	P11 Heliostats	Experimental investigation of peak wind loads on tandem operating heliostats within an atmospheric boundary layer. (2019) Jeremy Yu, Matthew Emes, Farzin Ghanadi, Maziar Arjomandi, Richard Kelso. Solar Energy, 183 (2019), 248-259 https://doi.org/10.1016/j.solener.2019.03.002
J19004	P11 Heliostats	Correlating turbulence intensity and length scale with the unsteady lift force on flat plates in an atmospheric boundary layer flow. (2019) Azadeh Jafari, Farzin Ghanadi, Maziar Arjomandi, Matthew Emes, Benjamin Cazzolato. Journal of Wind Engineering and Industrial Aerodynamics, 189 (2019), 218-230 https://doi.org/10.1016/j.jweia.2019.03.029
J19005	P11 Heliostats	Measurement of unsteady wind loads in a wind tunnel: scaling of turbulence spectra. (2019) Azadeh Jafari, Farzin Ghanadi, Matthew Emes, Maziar Arjomandi, Benjamin Cazzolato. Journal of Wind Engineering and Industrial Aerodynamics, 193 (2019), 103955 https://doi.org/10.1016/j.jweia.2019.103955

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ASTRI Ref	Research Area	Publication Title + Authors + Full Citation + Link
J19006	P11 Heliostats	Hinge and overturning moments due to unsteady heliostat pressure distributions in a turbulent atmospheric boundary layer. (2019) Matthew Emes, Azadeh Jafari, Farzin Ghanadi, Maziar Arjomandi. Solar Energy, 193 (2019), 604-617 https://doi.org/10.1016/j.solener.2019.09.097
J19007	P11 Heliostats	Turbulence length scales in a low-roughness near-neutral atmospheric surface layer. (2019) Matthew Emes, Maziar Arjomandi, Richard Kelso, Farzin Ghanadi. Journal of Turbulence, 20:9 (2019), 545-562 https://doi.org/10.1080/14685248.2019.1677908
J19008	P14 Particle receiver	The influence of wall temperature distribution on the mixed convective losses from a heated cavity. (2019) Ka Lok Lee, Alfonso Chinnici, Mehdi Jafarian, Maziar Arjomandi, Bassam Dally, Graham Nathan. Applied Thermal Engineering, 155 (2019), 157-165, https://doi.org/10.1016/j.applthermaleng.2019.03.052
J19009	P14 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. (2019) Ka Lok Lee, Alfonso Chinnici, Mehdi Jafarian, Maziar Arjomandi, Bassam Dally, Graham Nathan. Renewable Energy, 143 (2019),1544-1553, https://doi.org/10.1016/j.renene.2019.05.015
J19010	P14 Particle receiver	Thermal performance of vortex-based solar particle receivers for sensible heating. (2019) Dominic Davis, Mehdi Jafarian, Alfonso Chinnici, Woei Saw, Graham Nathan. Solar Energy, 177 (2019), 163-177. https://doi.org/10.1016/j.solener.2018.10.086
J19011	P14 Particle receiver	Particle residence time distributions in a vortex-based solar particle receiver-reactor: The influence of receiver tilt angle. (2019) Dominic Davis, Maurizio Troiano, Alfonso Chinnici, Woei Saw, Timothy Lau, Roberto Solimene, Piero Salatino, Graham Nathan. Solar Energy, 190 (2019), 126-138. https://doi.org/10.1016/j.solener.2019.07.078
J19012	P21 High Temperature Storage	Thermogravimetric analysis of Cu, Mn, Co, and Pb oxides for thermochemical energy storage. (2019) Mahyah Silakhori, Mehdi Jafarian, Maziar Arjomandi, Graham Nathan. Journal of Energy Storage, 23 (2019), 138-147. https://doi.org/10.1016/j.est.2019.03.008
J19013	P21 High Temperature Storage	Experimental assessment of copper oxide for liquid chemical looping for thermal energy storage. (2019) Mahyah Silakhori, Mehdi Jafarian, Maziar Arjomandi, Graham Nathan. Journal of Energy Storage, 21 (2019), 216-221. https://doi.org/10.1016/j.est.2018.11.033
J19014	P22 PCM Storage	Corrosion mechanisms in molten salt thermal energy storage for concentrating solar power (2019) Stuart Bell, Theodore A. Steinberg, Geoffrey Will. Renewable and Sustainable Energy Reviews. Volume 114, October 2019, 109328. https://doi.org/10.1016/j.rser.2019.109328
J19015	P2x Storage	Sensible energy storage options for concentrating solar power plants operating above 600°C

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		(2019) Gowtham Mohan, Mahesh B.Venkataraman, Joe Coventry. Renewable and Sustainable Energy Reviews, 107:319-337, June 2019 https://doi.org/10.1016/j.rser.2019.01.062
J19016	P2x Storage	Review on the development of high temperature phase change material composites for solar thermal energy storage (2018) Jiang, Yifeng; Liu, Ming; Sun, Yanping. Solar Energy Materials & Solar Cells. 2019; 203:110164. https://doi.org/10.1016/j.solmat.2019.110164
J19017	P2x Storage	Characterisation of promising phase change materials for high temperature thermal energy storage (2019) Rhys Jacob, Ming Liu, Yanping Sun, Martin Belusko, Frank Bruno. Journal of Energy Storage. Volume 24, August 2019, 100801. https://doi.org/10.1016/j.est.2019.100801
J19018	P2x Storage	Performance of novel Na2SO4-NaCl-ceramic composites as high temperature phase change materials for solar power plants (Part II) (2019) Yifeng Jiang, Yanping Sun, Sean Li. Solar Energy Materials and Solar Cells. Volume 194, 1 June 2019, Pages 285-294 https://doi.org/10.1016/j.solmat.2018.05.028
J19019	P2x Storage	Investigation of Phosphine Ligand Protected Au13 Clusters on Defect Rich Titania (2019) Gowri Krishnan, Namsoon Eom, Ryan M. Kirk, Vladimir B. Golovko, Gregory F. Metha, Gunther G. Andersson. J. Phys. Chem. C 123 (2019) 6642-6649 https://doi.org/10.1021/acs.jpcc.9b00083
J19020	P22 PCM Storage	Review on the development of high temperature phase change material composites for solar thermal energy storage (2019) Yifeng Jiang, Ming Liu, Yanping Sun. Solar Energy Materials and Solar Cells. Volume 203, December 2019, 110164. https://doi.org/10.1016/j.solmat.2019.110164
J19021	P22 PCM Storage	Experimental investigation of specific heat capacity improvement of a binary nitrate salt by addition of nanoparticles/microparticles (2019) Ming Liu, John Severino, Frank Bruno, Peter Majewski. Journal of Energy Storage. Volume 22, April 2019, Pages 137-143. https://doi.org/10.1016/j.est.2019.01.025
J19022	P22 PCM Storage	Novel solid–solid phase-change cascade systems for high-temperature thermal energy storage (2019) Alicia Bayon, Ming Liu, Dmitry Sergeev, Mihaela Grigore, Frank Bruno, Michael Müller. Solar Energy. Volume 177, 1 January 2019, Pages 274-283. https://doi.org/10.1016/j.solener.2018.10.085
J19023	P22 PCM Storage	Characterisation of promising phase change materials for high temperature thermal energy storage (2019) Rhys Jacob, Ming Liu, Yanping Sun, Martin Belusko, Frank Bruno Journal of Energy Storage. Volume 24, August 2019, 100801. https://doi.org/10.1016/j.est.2019.100801
J19024	P22 PCM Storage	Using renewables coupled with thermal energy storage to reduce natural gas consumption in higher temperature commercial/industrial applications (2019) Rhys Jacob, Martin Belusko, Ming Liu, Wasim Saman, Frank Bruno. Renewable Energy. Volume 131, February 2019, Pages 1035-1046. https://doi.org/10.1016/j.renene.2018.07.085
J19025	P22 PCM Storage	Sensible and latent heat energy storage systems for concentrated solar power plants, exergy efficiency comparison (2019) Soheila Riahi, Yoann Jovet, Wasim Y. Saman, Martin Belusko, Frank Bruno. Solar Energy. Volume 180, 1 March 2019, Pages 104-115. https://doi.org/10.1016/j.solener.2018.12.072

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ASTRI Ref	Research Area	Publication Title + Authors + Full Citation + Link
J19026	P31 Power Systems	A novel method to predict the transient start-up time for natural draft dry cooling towers in dispatchable power plants (2019) Dong, Peixin, Kaiser, Antonio S., Guan, Zhiqiang, Li, Xiaoxiao, Gurgenci, Hal and Hooman, Kamel (2019) A novel method to predict the transient start-up time for natural draft dry cooling towers in dispatchable power plants. International Journal of Heat and Mass Transfer, 145. https://doi.org/10.1016/j.ijheatmasstransfer.2019.118794
J19027	P31 Power Systems	Coupling supercritical carbon dioxide Brayton cycle with spray-assisted dry cooling technology for concentrated solar power (2019) Sun, Yubiao, Duniam, Sam, Guan, Zhiqiang, Gurgenci, Hal, Dong, Peixin, Wang, Jianyong and Hooman, Kamel (2019) Coupling supercritical carbon dioxide Brayton cycle with spray-assisted dry cooling technology for concentrated solar power. Applied Energy, 251 113328. https://doi.org/10.1016/j.apenergy.2019.113328
J19028	P31 Power Systems	Seasonal variation on the performance of the dry cooled supercritical CO2 recompression cycle (2019) Ehsan, M. Monjurul, Duniam, Sam, Guan, Zhiqiang, Gurgenci, Hal and Klimenko, Alexander (2019) Seasonal variation on the performance of the dry cooled supercritical CO2 recompression cycle. Energy Conversion and Management, 197 111865. doi:10.1016/j.enconman.2019.111865 https://doi.org/10.1016/j.enconman.2019.111865
J19029	P31 Power Systems	Computational investigations on convective flow and heat transfer of turbulent supercritical CO2 cooled in large inclined tubes (2019) Wang, Jianyong, Li, Jishun, Gurgenci, Hal, Veeraragavan, Ananthanarayanan, Kang, Xin and Hooman, Kamel (2019) Computational investigations on convective flow and heat transfer of turbulent supercritical CO2 cooled in large inclined tubes. Applied Thermal Engineering, 159 113922. https://doi.org/10.1016/j.applthermaleng.2019.113922
J19030	P31 Power Systems	Effect of cooling system design on the performance of the recompression CO2 cycle for concentrated solar power application (2019) Ehsan, M. Monjurul, Duniam, Sam, Li, Jishun, Guan, Zhiqiang, Gurgenci, Hal and Klimenko, Alexander (2019) Effect of cooling system design on the performance of the recompression CO2 cycle for concentrated solar power application. Energy, 180 480-494. https://doi.org/10.1016/j.energy.2019.05.108
J19031	P31 Power Systems	The crosswind effects on the start-up process of natural draft dry cooling towers in dispatchable power plants (2019) Dong, Peixin, Li, Xiaoxiao, Hooman, Kamel, Sun, Yubiao, Li, Jishun, Guan, Zhiqiang and Gurgenci, Hal (2019) The crosswind effects on the start-up process of natural draft dry cooling towers in dispatchable power plants. International Journal of Heat and Mass Transfer, 135 950-961. https://doi.org/10.1016/j.ijheatmasstransfer.2019.02.039
J19032	P31 Power Systems	A computationally derived heat transfer correlation for in-tube cooling turbulent supercritical CO2 (2019) Wang, Jianyong, Guan, Zhiqiang, Gurgenci, Hal, Veeraragavan, Ananthanarayanan, Kang, Xin and Hooman, Kamel (2019) A computationally derived heat transfer correlation for in-tube cooling turbulent supercritical CO2. International Journal of Thermal Sciences, 138 190-205. https://doi.org/10.1016/j.ijthermalsci.2018.12.045
J19033	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 (2019) Dong, Peixin, Li, Xiaoxiao, Sun, Yubiao, Hooman, Kamel, Guan, Zhiqiang, Dai, Yuchen and Gurgenci, Hal (2019) Numerical investigation of the influence of local effects on the transient start-up process of natural draft dry cooling towers in dispatchable power plants. International Journal of Heat and Mass Transfer, 133 166-178. https://doi.org/10.1016/j.ijheatmasstransfer.2018.12.066

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J19034	P31 Power Systems	Search for optimum renewable mix for Australian off-grid power generation (2019) Balaji, Vishak and Gurgenci, Hal (2019) Search for optimum renewable mix for Australian off-grid power generation. Energy, 175 1234-1245. https://doi.org/10.1016/j.energy.2019.03.089
J19035	P31 Power Systems	Spray cooling system design and optimization for cooling performance enhancement of natural draft dry cooling tower in concentrated solar power plants (2019) Sun, Yubiao, Guan, Zhiqiang, Gurgenci, Hal, Wang, Jianyong, Dong, Peixin and Hooman, Kamel (2019) Spray cooling system design and optimization for cooling performance enhancement of natural draft dry cooling tower in concentrated solar power plants. Energy, 168 273-284. https://doi.org/10.1016/j.energy.2018.11.111
J19036	P31 Power Systems	A review of the crosswind effect on the natural draft cooling towers (2019) 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 Engineering, 150 250-270. https://doi.org/10.1016/j.applthermaleng.2018.12.147
J19037	P41 Operations + Maintenance	In-situ reflectivity monitoring of heliostats using calibration cameras Ruizi Wang, Pietro Borghesani, Michael E. Cholette, Benjamin Duck, Lin Ma, Theodore A. Steinberg. AIP Conference Proceedings. 2019; 2126:030062 https://doi.org/10.1063/1.5117574
J19038	P41 Operations + Maintenance	Modelling the soiling of heliostats: Assessment of the optical efficiency and impact of cleaning operations (2019) Picotti G, Binotti M, Cholette ME, Borghesani P, Manzolini G, Steinberg TA. AIP Conference Proceedings 2126, 030043 (2019). https://doi.org/10.1063/1.5117555
J19039	P41 Solar bubble receiver	Preliminary evaluation of a novel solar bubble receiver for heating a gas. (2019) Mehdi Jafarian, Mohammad Reza Abdollahi, Graham Nathan. Solar energy, 182 (2019), 264-277. https://doi.org/10.1016/j.solener.2019.02.027
J19040	P42 xxx	A solar fuel plant via supercritical water gasification integrated with Fischer–Tropsch synthesis: steady-state modelling and techno-economic assessment (2019) Alirez Rahbari, Ali Shirazi, Mahesh B. Venkataraman, JohnPye. Energy Conversion and Management 184 (2019) 636–648. https://doi.org/10.1016/j.enconman.2019.01.033
J19041	P42 xxx	A solar fuel plant via supercritical water gasification integrated with Fischer–Tropsch synthesis: system-level dynamic simulation and optimisation (2019) Ali Shirazi, Alireza Rahbari, Charles-Alexis Asselineau, John Pye. Energy Conversion and Management 192 (2019) 71–87. https://doi.org/10.1016/j.enconman.2019.04.008
J19042	P42 xxx	Modelling of a 50 MW_{th} on-sun reactor for SCWG of algae: Understanding the design constraints (2019) Mahesh B. Venkataraman, Charles-Alexis Asselineau, Alireza Rahbari, and John Pye. AIP Conference Proceedings 2126 (2019), 180017. SolarPACES PDF
J19043	P42 xxx	System-level simulation of a solar-driven liquid fuel production plant via gasification-Fischer–Tropsch route (2019) Ali Shirazi, Alireza Rahbari, and John Pye. AIP Conference Proceedings 2126 (2019), 180016. https://doi.org/10.1063/1.5117696

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ASTRI Ref	Research Area	Publication Title + Authors + Full Citation + Link
J19044	P43 Materials	On the effect of cold-rolling on the corrosion of SS316L alloy in a molten carbonate salt (2019) Madjid Sarvghad, Ondrej Muránsky, Theodore A.Steinberg, James Hester, Michael R.Hill, Geoffrey Will. Solar Energy Materials and Solar Cells. Volume 202, November 2019, 110136 https://doi.org/10.1016/j.solmat.2019.110136
J19045	P51 Advanced Materials	Corrosion testing under inert atmosphere with stainless steel crucibles (2019) Bell, S., Will, G., & Steinberg, T. AIP Conference Proceedings 2126, 200004 (2019). Paper presented at the SolarPACES, Casablanca, Morocco. https://aip.scitation.org/doi/abs/10.1063/1.5117719
J19046	P51 Advanced Materials	Damage analysis of 601 nickel superalloy in eutectic Na2CO3/NaCl molten salt under isothermal and thermal cycling conditions (2019) Bell, S., Lippiatt, K., Steinberg, T., & Will, G. Solar Energy, 191, 637-646. https://doi.org/10.1016/j.solener.2019.09.030
J19047	P51 Advanced Materials	Corrosion testing under inert atmosphere with stainless steel crucibles (2019) Bell, S., Will, G., & Steinberg, T. AIP Conference Proceedings 2126, 200004 (2019). Paper presented at the SolarPACES, Casablanca, Morocco. https://aip.scitation.org/doi/abs/10.1063/1.5117719
J2000x	P31 Power Systems	A comparison of three methodological approaches for meanline design of supercritical CO2 radial inflow turbines (2020) Lee, Sangkyoung and Gurgenci, Hal (2020) A comparison of three methodological approaches for meanline design of supercritical CO2 radial inflow turbines. Energy Conversion and Management, 206 112500. https://doi.org/10.1016/j.enconman.2020.112500
J2000x	P31 Power Systems	A comprehensive thermal assessment of dry cooled supercritical CO2 power cycles (2020) Monjurul Ehsan, M., Duniam, Sam, Li, Jishun, Guan, Zhiqiang, Gurgenci, Hal and Klimenko, Alexander (2020) A comprehensive thermal assessment of dry cooled supercritical CO2 power cycles. Applied Thermal Engineering. https://doi.org/10.1016/j.applthermaleng.2019.114645
J2000x	P31 Power Systems	A comprehensive review on numerical approaches to simulate heat transfer of turbulent supercritical CO2 flows (2020) Wang, Jianyong, Guan, Zhiqiang, Gurgenci, Hal, Sun, Yubiao and Hooman, Kamel (2020) A comprehensive review on numerical approaches to simulate heat transfer of turbulent supercritical CO2 flows. Numerical Heat Transfer, Part B: Fundamentals. https://doi.org/10.1080/10407790.2020.1720440