批准立项年份	2009 年
通过验收年份	2012 年

国家级实验教学示范中心年度报告

（2020 年 1 月 1 日——2020 年 12 月 31 日）

实验教学中心名称：能源系统与动力工程实验教学中心

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所在学校名称：长沙理工大学

所在学校联系人/联系电话：

2021 年 3 月 26 日填报

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6 = ð ƒ / ± ’ Â F ~

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2100 106

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Å -	C	] a	0+U ª 3	6,0&	6, ×	’]C^	œ *f*	= #
1			1963					
2			1973					
3			1967					

4			1974					
5			1967					
6			1963					
7			1962					
8			1972					
9			1978					
10			1959					
11			1963					
12			1980					
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14			1978					
15			1960					
16			1966					
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23			1988					
24			1980					
25			1979					
26			1983					
27			1981					
28			1986					
29			1988					
30			1960					
31			1972					

5			1977					
6			1972					
7			1971					
8			1980					
9			1985					
10			1984					
11			1986					
12			1986					
13			1976					

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Å -	C	] a	0+U ª 3	6,0&	3 a	’ ‹ *f*	2± Á	’ UL†
1			1977					2019- 2020
2			1986					2019- 2020
3			1978					2019- 2020

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Å -	C	] a	0+U ª 3	6,0&	6, ×	3 a	’ ‹ *f*	2± Á	ø P !W ¦
1			1963						1
2			1963						1
3			1967						1

4			1962						1
5			1963						1
6			1963						1
7			1961						1

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Å -	M˜ G,º I P		œ+U ð ¦	ð , ¦
	I P C0&	ª4Ý		
1		2016	192	7680
2		2017	194	5910
3		2018	224	4480
4		2019	202	2020
5		2020	218	3270
6		2016	45	1800
7		2017	54	1620
8		2018	58	1160
9		2019	81	810
10		2020	70	1050
11		2016	75	3000
12		2017	91	2730
13		2018	117	2340
14		2019	132	1320
15		2020	140	1820
16		2016	100	4000
17		2017	83	2490
18		2018	83	1660
19		2019	72	720

20		2020	105	1365

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´ 6 µ µ û • œ oMŸ 1 × 5 Co

Å -	N¯-$⁄ B4NÎ C0&	½ -	CUCY ð	ø Ö ð Ž	C-!˜ ,L*	5 Co（= y）	2± a
1		2020 232			202001‑202112	2	a
2		2020 232			202001‑202112	2	a

3		2020 233			202001-202112	2	a
4		2020 233			202001-202112	2	a
5		2020 233			202001-202112	2	a
6		2020 233			202001-202112	2	a
7		2020 9			202001-202112	10	a

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´ Â µ µ û0 .J 1 × 5 Co

Å -	N¯-$⁄ B4NÎ C0&	½ -	CUCY ð	ø Ö ð Ž	C-!˜ ,L*	5 Co (= y)	2± a
1	CO2				202008-202312	58	a

	-	2020 42					
2		2020 42			202008 202312	24	a
3		2020 42			202008 202312	58	a
4		2020 42			202008 202312	24	a
5		2020 42		Jovana Jovanovic	202008 202312	59	a
6	CNTsG/GO MxOy	2020 1			202008 202312	10	a
7		2020 1			202008 202312	5	a
8		2020 1			202101 202312	5	a
9	Cr2AlC/Cr3C2	2020 1		Xiaobo Chen,	202101 202312	5	a

	N2O						
19		2020 264			202101-202312	2	a

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Å -	I _ C0&	I _ ¾ y -	9í ü 3 a	Â F ð	2± Á	2± a
1	HIGHEFFICIENCY FILM-FORMING WATI DISTRIBUTOR FOR EVAPORATIVE COOL	2020102570				-
2		ZL2018105826514				
3		ZL 2017 1 0037202.7				-
4		ZL201710319849.9		; ; ; ; ; ; ;		-
5		ZL201810058326.8		; ; ; ; ; ;		-
6		ZL201810146270.1				
7		201810367676.2				
8		ZL201810620295.0				-
9		ZL201810760485.2				-

10		ZL201910044334.1				
11		ZL201910281498.6				
12		ZL2018111225346				-
13		ZL2018102154534				
14		ZL201910105203X				-
15		ZL201910537215X				-
16		ZL2019105717259				-
17		ZL 201911018523.8				-
18		ZL 201810256267.5				
19		ZL 201811030956.0				
20		ZL 201810393578.6				-
21	Mg	ZL201910863823.X				-
22		ZL2019223369589				-
23		ZL201921919550.8				
24		ZL201922302610.8				

25	SCR	ZL201920576408.1				
26	V1.0	2019SR1218507				
27	600MW V1.0	2020R11S1130880				

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Å -	Að ½ L I:• C0&	’6;	@(Ÿ =0(~/t C0&	- = U ´ L1 8¸ µ= N«	2± Á	2± a
1				2020,40(11):897-905.	CSCD	
2	600MW			2020,40(05):392-397.	CSCD	
3	/			2021,72(2):1132-1141	EI Compendex	
4				2020,41(02):73-77.	EI Compendex	
5						

10	CO_2			2020,26(3):265-272	CSCD	
11				2020,34(6):180-185	EI Compendex	
12				2020,36(9):52-58.	CSCD	
13				2020,36(5):52-55.	CSCD	
14				2020,48(6):38-43,50.	CSCD	
15	SnO2			2020,34(21):21072-21080,21098.	EI Compendex	
16	RSLOD			2020,39(16):120-128.	CSCD	
17				2020,62(5):321-326.		
18				2020,62(2):107-111		
19				2020,34(2):191-196.		
20				2018,47(11):11-16.		
21	Solidification and Leaching Behaviors of V and As in a Spent Catalyst - Containing Concrete		Energy&Fuels	2020	CSCD	
22	Insight into the catalytic performance and NH3 adsorption under high concentration of CO2 and/or H2O conditions on selective catalytic reduction of NO by NH3 over V2O5WO3/TiO2 catalyst		Fuel	2020	SCI(E)	
23	Enhancement of the performance of a NEPCM filled shell - and-multi tube thermal energy storage system using magnetic field: A numerical study.		Applied Thermal Engineering	2020, 178:115604.	SCI(E)	
24	Entropy generation analysis for thermomagnetic convection of paramagnetic fluid inside a po		Journal of Thermal Analysis and	2020, 139(3):2005-2022.	SCI(E)	

	rous enclosure in the presence of magnetic quadrupole field.		Calorimetry			
25	An improved r - factor algorithm for TVD schemes on twodimension non- uniform unstructured grids		International Journal for Numerical Methods in Fluids	2020	SCI(E)	
26	Study on the energy charging process of a plate - type latent heat thermal energy storage unit and optimization using Taguchi method		Applied Thermal Engineering	2,020,164	SCI(E)	
27	Thermal performance of a lightweight building with phase change material under a humid subtropical climate		Energy and Built Environment	2020	SCI(E)	
28	Thermal performance of an array condenser flat heat pipe for IGBT heat dissipation		Microelectronics Reliability	2020, 104	SCI(E)	
29	ATF			2020, 40(1):59-64.	SCI(E)	
30	Analysis of flame characteristics of low calorific value gas diffusion combustion under the action of thermal dynamics		Combustion Theory and Modelling	2020	SCI(E)	
31	Kinetic analysis of diffusion combustion of low calorific value gas under the action of thermal dynamics		Fuel	2020	SCI(E)	
32	BIO- WASTES ENERGY UTILIZATIO THERMAL CHARACTERISTICS AN KINETICS OF GCOMBUSTION OF EUCOMMIA LEAF RESIDUES AND C		Heat Transfer Research	2020, 51(6):551-569.	SCI(E)	
33	-		2020	2020	CSCD	
34				2020(3):55-64.	CSCD	
35	Steam gasification of Miscanthus derived char: the reaction kinetics and reactivity with correlation to the material composition and microstructure		Energy Conversion and Management	2,020,219	CSCD	

36	Co pyrolysis of Miscanthus Sacchariflorus and coals: A systematic study on the synergies in thermal decomposition, kinetics and vapour phase products		Fuel	2019, 262:116603.	SCI(E)	
37	Kinetics study on the CO2 gasification of biochar derived from Miscanthus at different processing conditions		Energy	2021, 217	SCI(E)	
38	Photocatalytic removal of elemental mercury via Ce - doped TiO2 catalyst coupling with a novel optical fiber monolith reactor		Environmental Science and Pollution Research	2020, 27(17).	SCI(E)	

39

	Electrodialysis					
50	The modeling of the flow behavior below and above the two phase region for two newly developed meta - stable titanium alloy		Advanced Engineering Materials	2020	SCI(E)	
51	Influence of deformation strain rate on the mechanical response in a					

				160.		
61	Operation Analysis of a SAG Mill under Different Conditions Based on DEM and Breakage Energy Method		energies	2020, 13.	SCI(E)	
62				1-6[2021-03-29]	CSCD	
63	Enhanced charge generation and transfer performance of the conical bamboo-like TiO2 nanotube arrays photo-electrodes in quantum dot sensitized solar cells		Solar Energy	2020, 205:161-169.	SCI(E)	
64	Band energy modulation on Cu-doped Sb2S3 based photoelectrodes for charge generation and transfer property of quantum dot sensitized solar cells		Journal of Nanoparticle Research	2020, 22(9):282.	SCI(E)	
65	Enhancement on Charge Generation and Transfer Properties of Sb2S3 Quantum Dot-Sensitized Solar Cells by ZnO Nanorods Optimization		Journal of Electronic Materials	2020	SCI(E)	
66	Enhanced properties of diatomite-based composite phase change materials for thermal energy storage		Renewable Energy	2020, 147:265-274.	SCI(E)	
67	Diversiform microstructure silicon carbides stabilized stearic acid as composite phase change materials		Solar Energy	2020, 201:92-101.	SCI(E)	
68	Stearic acid/copper foam as composite phase change materials for thermal energy storage		Journal of Thermal Science	2020	SCI(E)	
69				2019,6(51):77-78+81.		
70	Microstructure tailoring to enhance strength and ductility in pure tantalum processed by selective laser melting		Materials Science & Engineering A	2020, 785:139352.	SCI(E)	
71	Effects of Ta content on phase transformation in selective laser melting processed Ti-13Nb-13Zr alloy and its correlation with elastic properties		Vacuum	2020	SCI(E)	

72	Calculation Method of Specific Surface Area of Foam Metal Based on an Ideal Tetradecahedron Model for Lithium Ion Battery		International Journal of Photoenergy	2020, 2020(1):1-7.	SCI(E)	
73	Dependence of precursors on solution - processed SnO2 electron transport layers for CsPbBr3 perovskite solar cells		Nano	2020	SCI(E)	
74	Corrosion Protection of copper current collector of lithium - ion batteries by doping polypyrrole coatings		International Journal of Electrochemical Science	2020:2667-2676.	SCI(E)	
75	Improved localisation algorithm based on Markov chain Monte Carlo - Metropolis Hastings for wireless sensor networks		International Journal of Sensor Netwokr	2020, 33(3):159.	SCI(E)	
76				ISBN 978-7-122-35855-4		
77				ISBN978 7 5710-0429-3		
78				ISBN978 7 5198-4158-4		
79				ISBN978 7 5198-4683-1		

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ø Ö#q Þ,º ð!W ¦	

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Å -	PAä C0&	q Ô ‹ ƒ C0&	PAä q c	ø Ö ð ¦	,L*	2± Á
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Å -	] P Û € C0&	Û € ð	PAä C0&	,L*	f&ï
1	LOD IEE		2020	2020/8/19	
2			2020	2020/8/26	
3	Integrated design optimization of distributed photovoltaic systems in buildings with phase change materials		CUE2020Applied Energy Symposium 2020: Low carbon cities and urban energy systems	2020/10/10	
4				2020/10/23	
5	SCR SO2 SO3			2020/12/18	

4. µ Ô1 C‘ û ë

Å -	1 C‘ C0&	1 C‘ 4Ý a	øC‘ ð ¦	CUCY ð	6,0&	C-!˜ ,L*	q5 Co （= y ）
1			130			2020.5.21-- 24	10

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5. 6 ‹0 ¤#q Þ û ë

Å -	#q Þ 6 ‹ , L*	ø Ö ð ¦	#q Þ ÛF‰5‡ v
1	2020 5 21 -5 24	130	http://www.csust.edu.cn/ndxy/info/1108/5308.htm
2	2020 6	1600	http://www.csust.edu.cn/ndxy/info/1108/5393.htm

6. µ Ô /Aã û ë

Å -	/AãN¯-$ C0&	/Aã ð ¦	CUCY ð	6,0&	C-!˜ ,L*	q5 Co ´ = y µ
1	150MW	70			7 -12	56
2	600MW	10			9 -12	10

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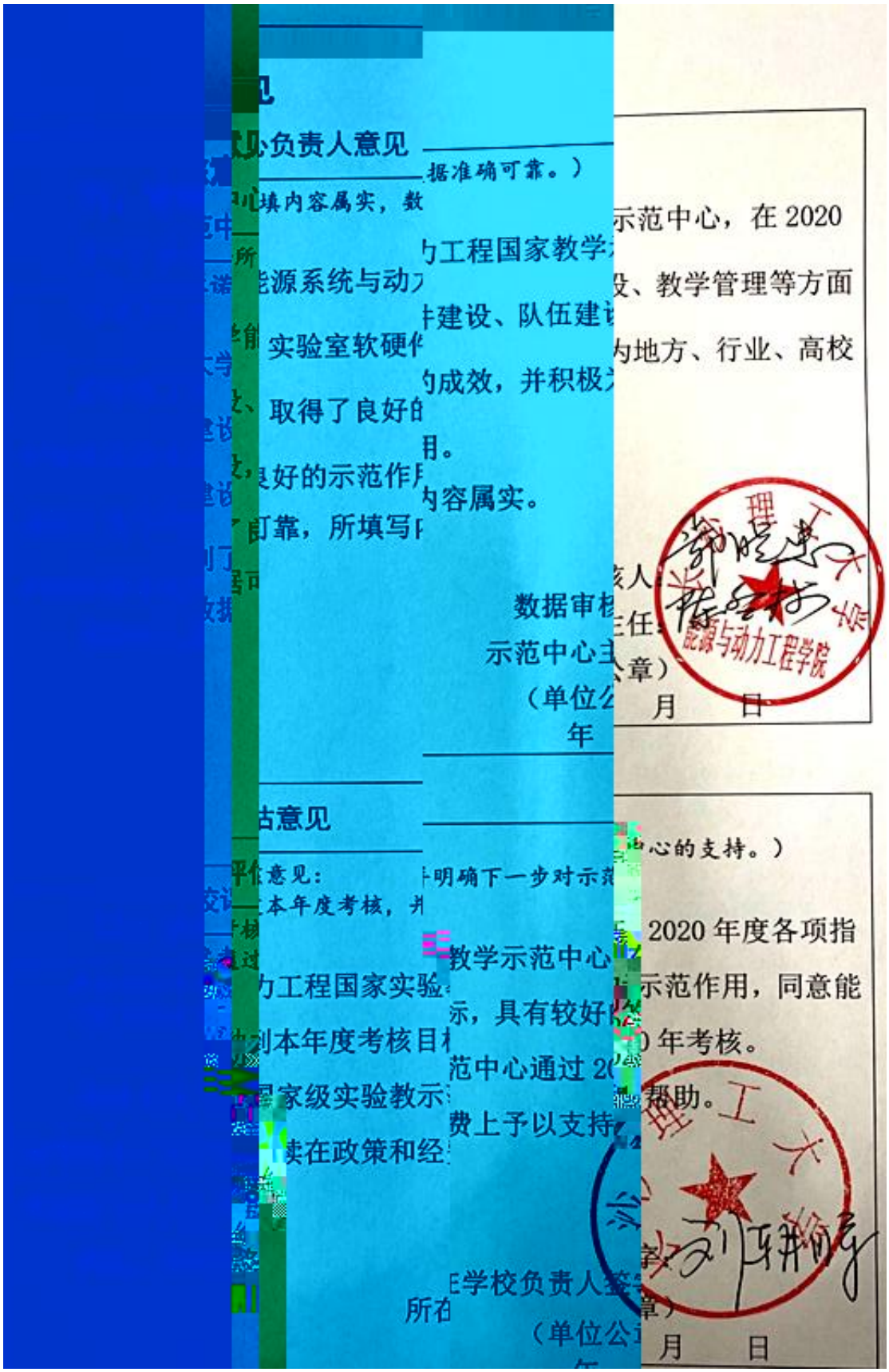
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