

DOI: 10.1016/J.SOLENER.2017.04.058 Corpus ID: 99499367; Material development and assessment of an energy storage concept based on the CaO-looping process @article{Obermeier2017MaterialDA, title={Material development and assessment of an energy storage concept based on the CaO-looping process}, author={Jonas Obermeier and Kyriaki G. ...

DOI: 10.1016/j.solmat.2022.111977 Corpus ID: 252192531; Decorating CaO with dark Ca₂MnO₄ for direct solar thermal conversion and stable thermochemical energy storage @article{Hu2022DecoratingCW, title={Decorating CaO with dark Ca₂MnO₄ for direct solar thermal conversion and stable thermochemical energy storage}, author={Yingchao Hu and ...

The method using the sacrificed biological template provides an advanced approach to fabricate porous materials, and the composite CaO-based material provides high ...

Due to the inconsistency and intermittence of solar energy, concentrated solar power (CSP) cannot stably transmit energy to the grid. ... Zr-Stabilized, CaO-Based Composites under Different Thermal Energy Storage Modes. Jian Sun Shengbin Bai +4 authors Zijian Zhou. Materials Science, Engineering ... Calcium-Looping performance of mechanically ...

Shengbin Bai Jian Sun +7 authors Wenqiang Liu. ... The exploitation of solar energy, an unlimited and renewable energy resource, is of prime interest to support the replacement of fossil fuels by renewable energy alternatives. ... Experimental investigation on the CaO/CaCO₃ thermochemical energy storage with SiO₂ doping. Xiaoyi Chen Xiaogang ...

Solar energy is the most abundant renewable energy source, with the sun releasing energy at a rate of 2.3 × 10²³ kW, of which about 1.8 × 10¹⁴ kW is received by the Earth [2]. Increasing the use of solar energy can help alleviate the energy crisis and reduce carbon emissions, which is the best option for mitigating the greenhouse effect.

Structurally improved, TiO₂-incorporated, CaO-based pellets for thermochemical energy storage in concentrated solar power plants. Shengbin Bai, Jian Sun, +7 authors. ...

Semantic Scholar extracted view of "Enhanced Thermochemical Energy Storage Stability of CaO-Based Composite Pellets Incorporated with a Zr-Based Stabilizer" by Yue Zhou et al. ... {Yue Zhou and Zijian Zhou and Lei Liu and Xiang-yang She and Ruichang Xu and Jian Sun and Minghou Xu}, journal={Energy & Fuels}, year={2021}, url={https://api ...

Yongji Cao currently works at the Academy of Intelligent Innovation, Shandong University. His current

research interests include power system stability analysis and control, application of ...

Possessing nontoxicity, high thermochemical energy storage density, and good compatibility with supercritical CO₂ thermodynamic cycles, calcium carbonate (CaCO₃) is a very promising candidate in ...

Cao Yu, Qi Wang, Yu Zhao, Xiaochao Ran, Gangqiang Dong, Chen-Wei Peng, Xinming Cao & Jian Zhou. ... Renewable Energy Conversion and Storage Center, Solar Energy Research Center, Nankai University ...

CaO-based materials are potential candidates for thermochemical energy storage in calcium looping (CaL) due to their low-cost and large theoretical heat storage capacity. The harsh energy storage ...

The reactions are, respectively, the reversible oxidation/reduction of MnO₂/Mn₂O₃ [23] in the oxides energy storage (OES), the largely investigated CaCO₃/CaO reaction [31] in the carbonates energy ...

Request PDF | On Mar 30, 2022, Jian Sun and others published Evaluation of Thermochemical Energy Storage Performance of Fe-/Mn-Doped, Zr-Stabilized, CaO-Based Composites under Different Thermal ...

Calcium looping process (CaL) is a promising thermochemical energy storage technology for the application in the 3rd generation concentrated solar power plants (CSP). Hence, it is ...

CaCO₃/CaO materials possess the advantages of low cost, high energy storage density, and working temperature, which offer these materials the potential to be used in thermochemical energy storage systems for concentrated solar power plants. However, CaCO₃/CaO materials possess poor antisintering and optical absorption abilities, largely ...

@article{Cao2024DoubleNetworkAE, title={Double-network aerogel-based eutectic composite phase change materials for efficient solar energy storage and building thermal management}, author={Feng Cao and Zaichao Li and Yuang Zhang and Linhai Zhu and JianRu Fan and Shufen Zhang and Bingtao Tang}, journal={Solar Energy Materials and Solar Cells ...

Semantic Scholar extracted view of "Steam reactivation of spent CaO/CaCO₃ for thermochemical energy storage" by Yingchao Hu et al. ... Published in Solar Energy 1 May 2023; Environmental Science, Engineering, Materials Science ... Zr-Stabilized, CaO-Based Composites under Different Thermal Energy Storage Modes. Jian Sun Shengbin Bai +4 authors ...

In recent years, CaO/CaCO₃ has attracted great attention in the field of thermochemical energy storage. However, due to its very low optical absorption, thermochemical energy storage materials made of pure CaO/CaCO₃ struggle to reach reaction temperatures when only absorbing solar energy directly in a calciner, making the overall system inefficient. ...

@article{Xu2021GlycineTE, title={Glycine tailored effective CaO-based heat carriers for thermochemical

energy storage in concentrated solar power plants}, author={Yongqing Xu and Tai Zhang and Bowen Lu and Cong Luo and Fan Wu and Xiaoshan Li and Liqi Zhang}, journal={Energy Conversion and Management}, year={2021}, url={https://api ...

@article{Fang2017OptimalSO, title={Optimal sizing of utility-scale photovoltaic power generation complementarily operating with hydropower: A case study of the world's largest hydro-photovoltaic plant}, author={Wei-Hung Fang and Qiang Huang and Sheng Huang and Junliang Yang and Erhao Meng and Yunyun Li}, journal={Energy Conversion and ...

Economic and environmental concerns over fossil fuels encourage the development of photovoltaic (PV) energy systems. Due to the intermittent nature of solar energy, energy storage is needed in a ...

Some review papers relating to EES technologies have been published focusing on parametric analyses and application studies. For example, Lai et al. gave an overview of applicable battery energy storage (BES) technologies for PV systems, including the Redox flow battery, Sodium-sulphur battery, Nickel-cadmium battery, Lead-acid battery, and Lithium-ion ...

In this paper, a new battery/ultracapacitor hybrid energy storage system (HESS) is proposed for electric drive vehicles including electric, hybrid electric, and plug-in hybrid electric vehicles.

calcination of CaCO_3 to produce CaO and CO_2 , which converts solar energy into chemical energy in CaO . Baker et al. [33] pointed out that high calcination temperature was beneficial for the

Calcium looping process (CaL) is a promising thermochemical energy storage technology for the application in the 3rd generation concentrated solar power plants (CSP). Hence, it is necessary to develop the highly efficient CaO -based heat storage composite materials. The structurally improved, CaO -based pellets were prepared via adding cellulose as ...

Calcium looping is a potential thermochemical energy storage technology applied in a high-temperature working window. However, CaCO_3/CaO materials are prone to encounter severe sintering, exhibiting poor thermal energy storage/release stability. To improve the thermochemical energy storage stability, different amounts (5, 15, and 30 wt %) of a Zr ...

DOI: 10.1002/ceat.202000173 Corpus ID: 225374818; Thermochemical Energy Storage Performances of Steel Slag-Derived CaO -Based Composites @article{Bai2020ThermochemicalES, title={Thermochemical Energy Storage Performances of Steel Slag-Derived CaO -Based Composites}, author={Shengbin Bai and Yue Zhou and ...

DOI: 10.3390/pr11020460 Corpus ID: 256589297; Biotemplating of Al_2O_3 -Doped, CaO -Based Material from Bamboo Fiber for Efficient Solar Energy Storage @article{Zhang2023BiotemplatingOA, title={Biotemplating of Al_2O_3 -Doped, CaO -Based Material from Bamboo Fiber for Efficient Solar Energy

Storage}, author={Haoran Zhang and Xiaotong ...

Request PDF | Carbonation of Limestone Derived CaO for Thermochemical Energy Storage: From Kinetics to Process Integration in Concentrating Solar Plants | Thermochemical energy storage (TCES) is ...

@article{Li2022ComparativeIO, title={Comparative investigation on thermochemical energy storage stability of Zr/Al-supported dark CaO-based composites under harsh energy storage mode}, author={Keke Li and Ruichang Xu and Jian Sun and Yuge Cui and Jianghua Liu and Shuoyu Yang and Ruilin Wang and Zijian Zhou and Xinming Nie}, ...

Semantic Scholar extracted view of "Integrated photovoltaic and battery energy storage (PV-BES) systems: An analysis of existing financial incentive policies in the US" by Jian Zhang et al.

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