

The 2021 Cahn Prize Finalists

December 2021

Design of polymers for energy storage capacitors using machine learning and evolutionary algorithms

Kern J, Chen L, Kim C, Ramprasad R

J Mater Sci 56 (2021) 19623–19635.

<https://doi.org/10.1007/s10853-021-06520-x>

<https://rdcu.be/du45x>

November 2021

Quenching-induced nonergodicity in ergodic $\text{Na}_{1/2}\text{Bi}_{1/2}\text{TiO}_3\text{-BaTiO}_3\text{-AgNbO}_3$ ceramics

Hua Q, Ren P, Wang J, Wang Y, Liu L, Lalitha KV, Hua D, Zhao G

J Mater Sci 56 (2021) 18430–18439

<https://doi.org/10.1007/s10853-021-06553-2>

<https://rdcu.be/du5aa>

October 2021

Origins of peaks of graphitic and pyrrolic nitrogen in N1s X-ray photoelectron spectra of carbon materials: quaternary nitrogen, tertiary amine, or secondary amine?

Kato T, Yamada Y, Nishikawa Y, Otomo T, Sato H, Sato S

J Mater Sci 56 (2021) 15798–15811

<https://doi.org/10.1007/s10853-021-06283-5>

<https://rdcu.be/du5bY>

September 2021

Quantitative analysis of Raman spectral parameters for carbon fibers: practical considerations and connection to mechanical properties

Brubaker ZE, Langfor JJ, Kapsimalis RJ, Niedziela JL

J Mater Sci 56 (2021) 15087–15121

<https://doi.org/10.1007/s10853-021-06225-1>

<https://rdcu.be/du5cZ>

August 2021

Electrodeposition of palladium-dotted nickel nanowire networks as a robust self-supported methanol electrooxidation catalyst

Boettcher T, Stojkovicj S, Khadke P, Kunz , Mayer MT, Roth C, Ensinger W, and Muench F

J Mater Sci 56 (2021) 12620–12633

<https://doi.org/10.1007/s10853-021-06088-6>

<https://rdcu.be/du5eI>

July 2021

Rheology of cellulose nanofibrils and silver nanowires for the development of screen-printed antibacterial surfaces

Spieser H, Jardin A, Deganello D, Geethin D, Bras J, Denneulin A

J Mater Sci 56 (2021) 12524–12538

<https://doi.org/10.1007/s10853-021-06082-y>

<https://rdcu.be/du5fD>

June 2021

Optical temperature sensing based on up conversion nanoparticles with enhanced sensitivity via dielectric superlensing modulation

Lin M, Cheng S, Wu X, Zhan S, Liu Y

J Mater Sci 56 (2021) 10438–10448

<https://doi.org/10.1007/s10853-021-05943-w>

<https://rdcu.be/du5iq>

May 2021

Porous spinel-type $(Al_{0.2}CoCrFeMnNi)_{0.58}O_{4-d}$ high- entropy oxide as a novel high-performance anode material for lithium-ion batteries

Xiang H-Z, Xie H-X, Chen Y-X, Zhang H, Mao A, Zhen C-H

J Mater Sci 56 (2021) 8127–8142

<https://doi.org/10.1007/s10853-021-05805-5>

<https://rdcu.be/du5iS>

April 2021

Particle curvature effects on microstructural evolution during solid-state sintering: phenomenological insights from phase-field simulations

Choudhuri D, Blake L

J Mater Sci 56 (2021) 7474–7493

<https://doi.org/10.1007/s10853-021-05802-8>

<https://rdcu.be/du5ja>

March 2021

Dislocation-based crack initiation and propagation in single-crystal $SrTiO_3$

Fang X, Ding K, Minnert C, Nakamura A, Durst K

J Mater Sci 56 (2021) 5479–5492

<https://doi.org/10.1007/s10853-020-05587-2>

<https://rdcu.be/du5jI>

February 2021

Conductive and adhesive gluten ionic skin for eco- friendly strain sensor

Han X, Lu W, Yu W, Xu H, Bi S, Cai H

J Mater Sci 56 (2021) 3970–3980

<https://doi.org/10.1007/s10853-020-05508-3>

<https://rdcu.be/du5jU>

January 2021

In situ X-ray measurements over large Q-space to study the evolution of oxide thin films prepared by RF sputter deposition

Walter P, Wernecke J, Scholz M, Reuther D, Rothkirch A, Haas D, Blume J, Resta A, Vlad A, Faley O, Schipmann S, Nent A, Seeck O, Dippel A-c, Klemradt U

J Mater Sci 56 (2021) 290–304

<https://doi.org/10.1007/s10853-020-05337-4>

<https://rdcu.be/du5kD>