

The 2022 Cahn Prize Finalists

December 2022

Heat-induced structural changes in magnesium alloys AZ91 and AZ31 investigated by in situ synchrotron high-energy X-ray diffraction

Liu X, Xu P, Shiro A, Zhang S, Shobu T, Yukutake E, Akita K, Zolotoyabko E, Liss K-D

J Mater Sci 57 (2022) 21446–21459

<https://doi.org/10.1007/s10853-022-07917-y>

<https://rdcu.be/du5q4>

November 2022

Machine learning guided alloy design of high- temperature NiTiHf shape memory alloys

Kankanamge UMHU, Reiner J, Ma X, Gallo SC, Xu W

J Mater Sci 57 (2022) 19447–19465

<https://doi.org/10.1007/s10853-022-07793-6>

<https://rdcu.be/du5zj>

October 2022

Vacancy-ordered chloride perovskites for reversible release–storage of chlorine

Lin Y-P, Xia B, Hu S, Liu Z, Huang X-Y, Xiao Z, Du K-Z

J Mater Sci 57 (2022) 18266–18276

<https://doi.org/10.1007/s10853-022-07745-0>

<https://rdcu.be/du5y2>

September 2022

Why does plasma serve as a facile strategy in engineering Ni–NiO heterostructure for enhanced electrocatalytic behavior?

Qiao F, Wang X, Sun C, Chen Y, Xu J, Ooyang B, Zhu J, Kan E

J Mater Sci 57 (2022) 16437–16447

<https://doi.org/10.1007/s10853-022-07643-5>

<https://rdcu.be/du5y1>

August 2022

Understanding the impact of texture on the micromechanical anisotropy of laser powder bed fused Inconel 718

Schröder J, Evans A, Polatidis E, Capek J, Mohr G, Serrano-Munoz I, Bruno G

J Mater Sci 57 (2022) 15036–15058

<https://doi.org/10.1007/s10853-022-07499-9>

<https://rdcu.be/du5yW>

July 2022

Molecular dynamics study of domain switching dynamics in KNbO₃ and BaTiO₃

Khadka R, Koblinski P

J Mater Sci 57 (2022) 12929–12946

<https://doi.org/10.1007/s10853-022-07407-1>

<https://rdcu.be/du5yF>

June 2022

Phase transformation and incompatibility at grain boundaries in zirconia-based shape memory ceramics: a micromechanics-based simulation study

Wang Z, Lai A, Schuh CA, Radovitzky R

J Mater Sci 57 (2022) 11132–11150

<https://doi.org/10.1007/s10853-022-07324-3>

<https://rdcu.be/du5yl>

May 2022

Transparent electrodes based on molybdenum– titanium–oxide with increased water stability for use as hole-transport/hole-injection components

Goetz S, Wibowo RA, Bauch M, Bansal N, Ligorio G, List-Kratochvil E, Linke C, Franske E, Winkler J, Valtiner M, Dimopoulos T

J Mater Sci 57 (2022) 8752–8766

<https://doi.org/10.1007/s10853-022-07157-0>

<https://rdcu.be/du5xg>

April 2022

Unravelling the role of lithium and nickel doping on the defect structure and phase transition of anatase TiO₂ nanoparticles

Vázquez-López A, Maestre D, Martínez-Casado R, Ramírez-Castellanos J, Pís I, Nappini S, Cremades A

J Mater Sci 57 (2022) 7191–7207

<https://doi.org/10.1007/s10853-022-07122-x>

<https://rdcu.be/du5wV>

March 2022

Understanding the effects of polar and non-polar surfactants on the oxidation performance of copper nanoparticles

Lee HO III, Vallejos AM, Rimsza JM, Clare Davis-Wheeler Chin CD-W, Ringgold M, Nicholas JR, Treadwell LR

J Mater Sci 57 (2022) 6167–6181

<https://doi.org/10.1007/s10853-022-07021-1>

<https://rdcu.be/du5wP>

February 2022

Time-resolved 3D characterisation of early-age microstructural development of Portland cement

Vigor JE, Bernal SA, Xiao X, Provis J

J Mater Sci 57 (2022) 4952–4969

<https://doi.org/10.1007/s10853-022-06952-z>

<https://rdcu.be/du5wd>

January 2022

The influence of carbon morphologies and concentrations on the rheology and electrical performance of screen-printed carbon pastes'

Potts S-J, Korochkina T, Holder A, Jewell E, Phillips C, Claypole T

J Mater Sci 57 (2022) 2650–2666

<https://doi.org/10.1007/s10853-021-06724-1>

<https://rdcu.be/du5wr>