

The 2020 Cahn Prize Finalists

December 2020

Automated segmentation of computed tomography images of fiber-reinforced composites by deep learning

Badran A, Marshall D, Legault Z, Makovetsky R, Provencher B, Piché N, Marsh M

J Mater Sci 55 (2020) 16273–16289

<https://doi.org/10.1007/s10853-020-05148-7>

<https://rdcu.be/du5Cu>

November 2020

Bioinspired composites reinforced with ordered steel fibers produced via a magnetically assisted 3D printing process

Ma Y, Wu Q, Duanmu L, Wu S, Liu Q, Li B, Zhou X

J Mater Sci 55 (2020) 15510–15522

<https://doi.org/10.1007/s10853-020-05092-6>

<https://rdcu.be/du5CH>

October 2020

Understanding the effect of water transport on the thermal expansion properties of the perovskites

$\text{BaFe}_{0.6}\text{Co}_{0.3}\text{Nb}_{0.1}\text{O}_{32d}$ and $\text{BaCo}_{0.7}\text{Yb}_{0.2}\text{Bi}_{0.1}\text{O}_{32d}$

Majewski AJ, Slater PR, Steinberger-Wilckens R

J Mater Sci 55 (2020) 13590–13604

<https://doi.org/10.1007/s10853-020-04994-9>

<https://rdcu.be/du5CN>

September 2020

Dissolution and precipitation of copper-rich phases during heating and cooling of precipitation-hardening steel

X5CrNiCuNb16-4 (17-4 PH)

Rowolt C, Milkereit B, Springer A, Kreyenschulte C, Kessler O

J Mater Sci 55 (2020) 13244–13257

<https://doi.org/10.1007/s10853-020-04880-4>

<https://rdcu.be/du5DK>

August 2020

Flexible, wearable microfluidic contact lens with capillary networks for tear diagnostics

Yang X, Yao H, Zhao G, Ameer GA, Sun W, Yang J, Mi S

J Mater Sci 55 (2020) 9551–9561

<https://doi.org/10.1007/s10853-020-04688-2>

<https://rdcu.be/du5Ec>

July 2020

Mole Understanding of scanning-system distortions of atomic-scale scanning transmission electron microscopy images

for accurate lattice parameter measurements

Fujinaka S, Sato Y, Teranishi R, Kaneko K

J Mater Sci 55 (2020) 8123–8133

<https://doi.org/10.1007/s10853-020-04602-w>

<https://rdcu.be/du5Ef>

June 2020

Imaging of boron distribution in steel with neutron radiography and tomography

Di Luozzo N, Schulz M, Fontana M

J Mater Sci 55 (2020) 7927–7937

<https://doi.org/10.1007/s10853-020-04556-z>

<https://rdcu.be/du5GH>

May 2020

Significant ion conduction in Cu acceptor-substituted bismuth titanate polycrystalline ceramics

Long C, Du T, Ren W

J Mater Sci 55 (2020) 5715-5729

doi.org/10.1007/s10853-020-04431-x

<https://rdcu.be/du5G9>

April 2020

Coherent phase decomposition in the Pd–H system

Schwarz RB, Khachatryan AK, Caro A, Baskes MI, Martinez E

J Mater Sci 55 (2020) 4864-4882

<https://doi.org/10.1007/s10853-019-04179-z>

<https://rdcu.be/du5Ht>

March 2020

Stretchable, self-healable, and reprocessable chemical cross-linked ionogels electrolytes based on gelatin for flexible supercapacitors

Liu J, Song H, Wang Z, Zhang J, Zhang J, Ba X

J Mater Sci 55 (2020) 3991-4004

<https://doi.org/10.1007/s10853-019-04271-4>

<https://rdcu.be/du5HO>

February 2020

Highly stretchable, breathable and negative resistance variation textile strain sensor with excellent mechanical stability for wearable electronics

Zhao K, Niu W, Zhang S

J Mater Sci 55 (2020) 2439-2453

<https://doi.org/10.1007/s10853-019-04189-x>

<https://rdcu.be/du5FA>

January 2020

Superhydrophilic–superhydrophobic patterned surfaces on glass substrate for water harvesting

Zhang J, Chen F, Lu Y, Zhang Z, Liu J, Chen Y, Liu X, Yang X, Carmalt CJ, Parkin IP

J Mater Sci 55 (2020) 498–508

<https://doi.org/10.1007/s10853-019-04046-x>

<https://rdcu.be/du5EM>