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2023

Origin of the switchable photocurrent direction in BiFeO₃ thin films.

Wang Y, Daboczi M, Zhang M, Briscoe J, Kim JS, Yan H and Dunn S. *Materials Horizons* vol. 10, (12) 5892-5897. Royal Society of Chemistry.

Correction to Electronic and Surface Modifications of NiCoFe Oxides: A Catalyst with Maximum Exposure of Fe Active Sites for Water Electrolysis.

Tahir A, Haq TU, Basra FR, Duran H, Briscoe J, Wang M, Titirici M-M, Hussain I and Rehman HU. *Acs Applied Engineering Materials* vol. 1, (9) 2450-2450. American Chemical Society (Acs).

Electronic and Surface Modifications of NiCoFe Oxides: A Catalyst with Maximum Exposure of Fe Active Sites for Water Electrolysis.

Tahir A, Haq TU, Basra FR, Duran H, Briscoe J, Wang M, Titirici M-M, Hussain I and Rehman HU. *Acs Applied Engineering Materials* vol. 1, (7) 1698-1710. American Chemical Society (Acs).

Deep Learning-Assisted Multivariate Analysis for Nanoscale Characterization of Heterogeneous Beam-Sensitive Materials.

Kosasih FU, Su F, Du T, Ratnasingham SR, Briscoe J and Ducati C. *Microscopy and Microanalysis*. Oxford University Press.

NanoEngineered Carbon FibreBased Piezoelectric Smart Composites for Energy Harvesting and SelfPowered Sensing.

He Q, Li X, Zhang H and Briscoe J. *Advanced Functional Materials* vol. 33, (20). Wiley.

2022

Tuning Halide Composition Allows Low Dark Current Perovskite Photodetectors With High Specific Detectivity.

Furlan F, Nodari D, Palladino E, Angela E, Mohan L, Briscoe J, Fuchter MJ, Macdonald TJ, Grancini G, McLachlan MA and Gasparini N. *Advanced Optical Materials*. Wiley.

Elucidating the Factors Limiting the Photovoltaic Performance of Mixed SbBi Halide Elpasolite Absorbers.

Li Z, Huang YT, Mohan L, Zelewski SJ, Friend RH, Briscoe J and Hoye RLZ. *Solar Rrl*. Wiley.

Controlled Porosity in Ferroelectric BaTiO₃ Photoanodes.

Augurio A, Alvarez-Fernandez A, Panchal V, Pittenger B, De Wolf P, Guldin S and Briscoe J. *Acs Applied Materials & Interfaces* vol. 14, (11) 13147-13157. American Chemical Society (Acs).

Overcoming Nanoscale Inhomogeneities in Thin-Film Perovskites via Exceptional Post-annealing Grain Growth for Enhanced Photodetection.

Du T, Richheimer F, Frohma K, Gasparini N, Mohan L, Min G, Xu W, Macdonald TJ, Yuan H, Ratnasingham SR, Haque S, Castro FA, Durrant JR, Stranks SD, Wood S, McLachlan MA and Briscoe J. *Nano Letters* vol. 22, (3) 979-988. American Chemical Society (Acs).

Efficient harvesting and storage of solar energy of an all-vanadium solar redox flow battery with a MoS₂ @TiO₂ photoelectrode.

Tian G, Jervis R, Briscoe J, Titirici M and Jorge Sobrido A. *Journal of Materials Chemistry A* vol. 10, (19) 10484-10492. Royal Society of Chemistry (Rsc).

2021

Additive-free, Low-temperature Crystallization of Stable -FAPbI₃ Perovskite.

Du T, Macdonald TJ, Yang RX, Li M, Jiang Z, Mohan L, Xu W, Su Z, Gao X, Whiteley R, Lin C-T, Min G, Haque SA, Durrant JR, Persson KA, McLachlan MA and Briscoe J. *Adv Mater* e2107850-e2107850.

Determining out-of-plane hole mobility in CuSCN via the time-of-flight technique to elucidate its function in perovskite solar cells.

Mohan L, Ratnasingham S, Panidi J, Daboczi M, Kim J-S, Anthopoulos T, Briscoe J, McLachlan M and Kreouzis T. *Acs Applied Materials and Interfaces*. American Chemical Society.

Aerosol Assisted Solvent Treatment: A Universal Method for Performance and Stability Enhancements in Perovskite Solar Cells.

Du T, Ratnasingham SR, Kosasih FU, Macdonald TJ, Mohan L, Augurio A, Ahli H, Lin CT, Xu S, Xu W, Binions R, Ducati C, Durrant JR, Briscoe J and McLachlan MA. *Advanced Energy Materials*.

Ambient Air-Stable CH₃NH₃PbI₃Perovskite Solar Cells Using Dibutylethanolamine as a Morphology Controller.

Butt MTZ, Hussain SZ, Li X, Briscoe J and Rehman HU. *Acs Applied Energy Materials*. American Chemical Society.

Influence of ZnO nanorod surface chemistry on passivation effect of TiO₂shell coating.

Li X, Tu Y, Pace S, Anselmi-Tamburini U and Briscoe J. *Journal of Physics D: Applied Physics* vol. 54, (25).

PN junction-based ZnO wearable textile nanogenerator for biomechanical energy harvesting.

He Q, Li X, Zhang J, Zhang H and Briscoe J. *Nano Energy* vol. 85.,

Novel scalable aerosol-assisted CVD route for perovskite solar cells.

RATNASINGHAM SR, Mohan L, Dabaczi M, Degousee T, Binions R, Fenwick O, Kim J-S, McLachlan M and Briscoe J. *Materials Advances*. Royal Society of Chemistry.

Robust Inorganic Hole Transport Materials for Organic and Perovskite Solar Cells: Insights into Materials Electronic Properties and Device Performance.

Fakharuddin A, Vasilopoulou M, Soltatl A, Haider MI, Briscoe J, Fotopoulos V, Di Girolamo D, Davazoglou D, Chroneos A, Yusoff ARBM, Abate A, Schmidt-Mende L and Nazeeruddin MK. *Solar Rrl* vol. 5, (1).

2020

Ammonia Gas Sensor Response of a Vertical Zinc Oxide Nanorod-Gold Junction Diode at Room Temperature.

Tu Y, Kyle C, Luo H, Zhang DW, Das A, Briscoe J, Dunn S, Titirici MM and Krause S. *Acs Sensors* vol. 5, (11) 3568-3575.

Light-intensity and thickness dependent efficiency of planar perovskite solar cells: charge recombinationversusextraction.

Du T, Xu W, Xu S, Ratnasingham SR, Lin CT, Kim J, Briscoe J, McLachlan MA and Durrant JR. *Journal of Materials Chemistry C* vol. 8, (36) 12648-12655.

The Role of Carbon Dots Derived Underlayer in Hematite Photoanodes.

Jorge Sobrido A, Guo Q, Titirici M-M and Briscoe J. *Nanoscale*. Royal Society of Chemistry.

Low Temperature Scalable Deposition of Copper(I) Thiocyanate Films via Aerosol-Assisted Chemical Vapor Deposition.

Mohan L, Ratnasingham SR, Panidi J, Anthopoulos TD, Binions R, McLachlan MA and Briscoe J. *Crystal Growth and Design*. American Chemical Society.

Role of Temperature and Growth Period in the Synthesis of Hydrothermally Grown TiO Nanorods.

Soosaimanickam A, Yilmaz P, Li X, Briscoe J, Anderson A-L, Dunn S and Sridharan MB. *Journal of Nanoscience and Nanotechnology* vol. 20, (6) 3873-3878. American Scientific Publishers.

Photocatalytic activity of 2D nanosheets of ferroelectric Dion-Jacobson compounds.

Xiong W, Porwal H, Luo H, Araullo-Peters V, Feng J, Titirici MM, Reece MJ and Briscoe J. *Journal of Materials Chemistry A* vol. 8, (14) 6564-6568. Royal Society of Chemistry.

2019

Unusual Thermal Boundary Resistance in Halide Perovskites: A Way To Tune Ultralow Thermal Conductivity for Thermoelectrics.

Liu T, Yue S-Y, Ratnasingham S, Degousée T, Varsini P, Briscoe J, McLachlan MA, Hu M and Fenwick O. *Acs Applied Materials and Interfaces*. American Chemical Society.

Self-adhesive electrode applied to ZnO nanorod-based piezoelectric nanogenerators.

Yilmaz P, Greenwood P, Meroni S, Troughton J, Novak P, Li X, Watson T and Briscoe J. *Smart Materials and Structures* vol. 28, (10). Iop Publishing.

ZnO nanowires for solar cells: a comprehensive review.

Consonni V, Briscoe J, Kärber E, Li X and Cossuet T. *Nanotechnology* vol. 30, (36) 362001-362001.

Bi₂Fe₄O₉ thin films as novel visible-light-active photoanodes for solar water splitting.

Wang Y, Daboczi M, Mesa CA, Ratnasingham SR, Kim JS, Durrant JR, Dunn S, Yan H and Briscoe J. *Journal of Materials Chemistry A* vol. 7, (16) 9537-9541.

Influence of ferroelectric dipole on the photocatalytic activity of heterostructured BaTiO₃-Fe₂O₃.

Cui Y, Sun H, Briscoe J, Wilson R, Tarakina N, Dunn S and Pu Y. *Nanotechnology*.

2018

Biomass-Derived Nitrogen-Doped Carbon Aerogel Counter Electrodes for Dye Sensitized Solar Cells.

Butt MTZ, Preuss K, Titirici M-M, Rehman HU and Briscoe J. *Materials* vol. 11, (7). Mdpi.

Light-Addressable Potentiometric Sensors using ZnO Nanorods as the Sensor Substrate for Bioanalytical Applications.

TU Y, AHMAD N, BRISCOE J, ZHANG D and KRAUSE S. *Analytical Chemistry*. American Chemical Society.

Aerosol assisted chemical vapour deposition of conformal ZnO compact layers for efficient electron transport in perovskite solar cells.

Chen S, Wang J, Zhang Z, Briscoe J, Warwick MEA, Li H and Hu P. *Materials Letters* vol. 217, 251-254.

Optimization of 3D ZnO brush-like nanorods for dye-sensitized solar cells.

Pace S, Resmini A, Tredici IG, Soffientini A, Li X, Dunn S, Briscoe J and Anselmi-Tamburini U. *Rsc Advances* vol. 8, (18) 9775-9782.

Control of oxygen vacancies in ZnO nanorods by annealing and their influence on ZnO/PEDOT:PSS diode behaviour.

TU Y, CHEN S, LI X, GORBACIOVA J, GILLIN WP, KRAUSE S and BRISCOE J. *Journal of Materials Chemistry C*. Royal Society of Chemistry.

2017

Improved Stability of Polymer Solar Cells in Ambient Air via Atomic Layer Deposition of Ultrathin Dielectric Layers.

Polydorou E, Botzakaki MA, Sakellis I, Soultati A, Kaltzoglou A, Papadopoulos TA, Briscoe J, Drivas C, Seintis K, Fakis M, Palilis LC, Georga SN, Krontiras CA, Kennou S, Falaras P, Boukos N, Davazoglou D, Argitis P and Vasilopoulou M. *Advanced Materials Interfaces*.

Enhanced Photocatalytic Activity of Heterostructured Ferroelectric BaTiO₃-Fe₂O₃ and the Significance of Interface Morphology Control.

Cui Y, Briscoe J, Wang Y, Tarakina NV and Dunn S. *Acs Appl Mater Interfaces* vol. 9, (29) 24518-24526.

Dye-Sensitized Solar Cells: The Future of Using Earth-Abundant Elements in Counter Electrodes for Dye-Sensitized Solar Cells (Adv. Mater. 20/2016).

Briscoe J and Dunn S. *Adv Mater* vol. 28, (20) 3976-3976.

Avoiding ambient air and light induced degradation in high-efficiency polymer solar cells by the use of hydrogen-doped zinc oxide as electron extraction material.

Polydorou E, Sakellis I, Soultati A, Kaltzoglou A, Papadopoulos TA, Briscoe J, Tsikritzis D, Fakis M, Palilis LC, Kennou S, Argitis P, Falaras P, Davazoglou D and Vasilopoulou M. *Nano Energy* vol. 34, 500-514.

Optimization of sputtered ZnO transparent conductive seed layer for flexible ZnO-nanorod-based devices.
Novk P, Briscoe J, Kozk T, Kormunda M, Netrvalov M and Bachrat Š. *Thin Solid Films*.

Filtration effects of graphene nanoplatelets in resin infusion processes: Problems and possible solutions.

Zhang H, Liu Y, Huo S, Briscoe J, Tu W, Picot OT, Rezai A, Bilotti E and Peijs T. *Composites Science and Technology* vol. 139, 138-145.

Carbon Nanodot Solar Cells from Renewable Precursors.

Titirici M-M, Marinovic A, Dunn S, Swee Kiat L and Briscoe J. *Chemsuschem*.

Renewable Solar Cells.

Dave Smith D, Titirici M-M and Briscoe J. *Chemviews*.

2016

The Future of Using Earth-Abundant Elements in Counter Electrodes for Dye-Sensitized Solar Cells.

Briscoe J and Dunn S. *Adv Mater* vol. 28, (20) 3802-3813.

Photo-enhanced catalytic activity of spray-coated Cu₂SnSe₃ nanoparticle counter electrode for dye-sensitised solar cells.

Ananthakumar S, Li X, Anderson A-L, Yilmaz P, Dunn S, Babu SM and Briscoe J. *Physica Status Solidi-Rapid Research Letters* vol. 10, (10) 739-744.

Surface passivation effect by fluorine plasma treatment on ZnO for efficiency and lifetime improvement of inverted polymer solar cells.

Polydorou E, Zeniou A, Tsikritzis D, Soultati A, Sakellis I, Gardelis S, Papadopoulos TA, Briscoe J, Palilis LC, Kennou S, Gogolides E, Argitis P, Davazoglou D and Vasilopoulou M. *Journal of Materials Chemistry A* vol. 4, (30) 11844-11858.

2015

A simple, low-cost CVD route to high-quality

CH₃ <sub>3</sub>NH₃ <sub>3</sub>PbI₃ perovskite thin films.

Chen S, Briscoe J, Shi Y, Chen K, Wilson RM, Dunn S and Binions R. *Crystengcomm* vol. 17, (39) 7486-7489.

Piezoelectric nanogenerators a review of nanostructured piezoelectric energy harvesters.

Briscoe J and Dunn S. *Nano Energy* vol. 14, 15-29. Elsevier.

BiomassDerived Carbon Quantum Dot Sensitizers for SolidState Nanostructured Solar Cells.

Briscoe J, Marinovic A, Sevilla M, Dunn S and Titirici M. *Angewandte Chemie International Edition* vol. 54, (15) 4463-4468. Wiley.

Aus Biomasse hergestellte KohlenstoffQuantenpunktSensibilisatoren für nanostrukturierte FestkörperSolarzellen.

Briscoe J, Marinovic A, Sevilla M, Dunn S and Titirici M. *Angewandte Chemie* vol. 127, (15) 4544-4550. Wiley.

Correlation Between Stem Cell Differentiation and the Topography of Zinc Oxide Nanorods.

Ansari F, Njuguna J, Kavosh N and Briscoe J. *Journal of Bionanoscience* vol. 9, (1) 73-76. American Scientific Publishers.

ZnO nanorod surface modification with PDDA/PSS Bi-layer assembly for performance improvement of ZnO piezoelectric energy harvesting devices.

Jalali N, Briscoe J, Tan YZ, Wooliams P, Stewart M, Weaver PM, Cain MG and Dunn S. *Journal of Sol-Gel Science and Technology* vol. 73, (3) 544-549. Springer Us.

2014

An Investigation into the Effect of Ferroelectricity of BaTiO₃ on the Photocatalytic Activity in Dye Decolourisation.

Cui YF, Briscoe J and Dunn S. *Trans Tech Publications*.

Chemical protection of ZnO nanorods at ultralow pH To form a hierarchical BiFeO₃/ZnO core-shell structure.
Loh L, Briscoe J and Dunn S. *Acs Appl Mater Interfaces* vol. 7, (1) 152-157.

Improved performance of p-n junction-based ZnO nanogenerators through CuSCN-passivation of ZnO nanorods.

Jalali N, Wooliams P, Stewart M, Weaver PM, Cain MG, Dunn S and Briscoe J. *Journal of Materials Chemistry A* vol. 2, (28) 10945-10951.

Enhanced performance with bismuth ferrite perovskite in ZnO nanorod solid state solar cells.

Loh L, Briscoe J and Dunn S. *Nanoscale* vol. 6, (12) 7072-7078.

Acoustic enhancement of polymer/ZnO nanorod photovoltaic device performance.

Shoaei S, Briscoe J, Durrant JR and Dunn S. *Advanced Materials* vol. 26, (2) 263-268.

Nanostructured Piezoelectric Energy Harvesters.

Briscoe J and Dunn S. *Springer Nature*.

2013

Effect of ferroelectricity on solar-light-driven photocatalytic activity of BaTiO₃ - Influence on the carrier separation and stern layer formation.

Cui Y, Briscoe J and Dunn S. *Chemistry of Materials* vol. 25, (21) 4215-4223.

Investigating the source of deep-level photoluminescence in ZnO nanorods using optically detected x-ray absorption spectroscopy.

Hatch SM, Sapelkin A, Cibin G, Taylor R, Dent A, Briscoe J and Dunn S. *Journal of Applied Physics* vol. 114, (15).

Measurement techniques for piezoelectric nanogenerators.

Briscoe J, Jalali N, Wooliams P, Stewart M, Weaver PM, Cain M and Dunn S. *Energy and Environmental Science* vol. 6, (10) 3035-3045.

ZnO nanogenerators - Energy generation through scavenging vibration, advantages of using a diode.

Briscoe J, Jalali N, Wooliams P, Stewart M, Cain M, Weaver PM and Dunn S. *Proceedings of Spie - The International Society For Optical Engineering* vol. 8763.,

Influence of anneal atmosphere on ZnO-nanorod photoluminescent and morphological properties with self-powered photodetector performance.

Hatch SM, Briscoe J, Sapelkin A, Gillin WP, Gilchrist JB, Ryan MP, Heutz S and Dunn S. *J. Appl. Phys.* vol. 113, (20) 204501-9.Ieee.

A self-powered ZnO-nanorod/CuSCN UV photodetector exhibiting rapid response.

Hatch SM, Briscoe J and Dunn S. *Adv Mater* vol. 25, (6) 867-871.

Non-volatile electrically-driven repeatable magnetization reversal with no applied magnetic field.

Ghidini M, Pellicelli R, Prieto JL, Moya X, Soussi J, Briscoe J, Dunn S and Mathur ND. *Nature Communications* vol. 4, 1453-1453.Nature Publishing Group.

Improved CuSCN-ZnO diode performance with spray deposited CuSCN.

Hatch SM, Briscoe J and Dunn S. *Thin Solid Films* vol. 531, 404-407.

Perovskite enhanced solid state ZnO solar cells.

Loh L, Briscoe J and Dunn S. *Journal of Physics: Conference Series* vol. 476, (1).

Passivation of zinc oxide nanowires for improved piezoelectric energy harvesting devices.

Jalali N, Briscoe J, Wooliams P, Stewart M, Weaver PM, Cain M and Dunn S. *Journal of Physics: Conference Series* vol. 476, (1).

ZnO nanostructured diodes - Enhancing energy generation through scavenging vibration.

Briscoe J, Jalali N, Loh L, Shoaei S, Wooliams P, Stewart M, Cain M, Weaver PM, Durrant JR and Dunn S. *Materials Research Society Symposium Proceedings* vol. 1556, 1-10.

2012

Nanostructured zinc oxide piezoelectric energy generators based on semiconductor P-N junctions.
Briscoe J, Stewart M, Vopson M, Cain M, Weaver PM and Dunn S. *Materials Research Society Symposium Proceedings* vol. 1439, 151-156.

Nanostructured p-n junctions for kinetic-to-electrical energy conversion.
Briscoe J, Stewart M, Vopson M, Cain M, Weaver PM and Dunn S. *Advanced Energy Materials* vol. 2, (10) 1261-1268.

Measured efficiency of a ZnO nanostructured diode piezoelectric energy harvesting device.
Briscoe J, Bilotti E and Dunn S. *Applied Physics Letters* vol. 101, (9).

2011

Influence of Annealing on Composition and Optical Properties of CdTe Nanoparticle Layer-by-Layer Films.
Briscoe J, Gallardo DE, Lesnyak V and Dunn S. *J Nanosci Nanotechno* vol. 11, (6) 5270-5273.

Enhanced quantum dot deposition on ZnO nanorods for photovoltaics through layer-by-layer processing.
Briscoe J, Gallardo DE, Hatch S, Lesnyak V, Gaponik N and Dunn S. *J Mater Chem* vol. 21, (8) 2517-2523.

ZnO Nanorods-A Backbone for PV's.
Briscoe J, Gallardo DE and Dunn S. *Ferroelectrics* vol. 420, 19-24.

Extremely thin absorber solar cells based on nanostructured semiconductors.
Briscoe J and Dunn S. *Materials Science and Technology* vol. 27, (12) 1741-1756.

2010

Antimony doped ZnO nanorods - A change from n to p type?.
Briscoe J, Gallardo DE and Dunn S. *Materials Research Society Symposium Proceedings* vol. 1256, 194-198.

Layer-by-layer CdTe nanoparticle absorbers for ZnO nanorod solar cells - The influence of annealing on cell performance.
Briscoe J, Gallardo DE and Dunn S. *Materials Research Society Symposium Proceedings* vol. 1260, 27-34.

Effect of transparent electrode on the performance of bulk heterojunction solar cells.
Adikaari AADT, Briscoe J, Dunn S, Carey JD and Silva SRP. *Materials Research Society Symposium Proceedings* vol. 1270, 67-71.

Layer-by-layer CdTe Nanoparticle Absorbers for ZnO Nanorod Solar Cells - The Influence of Annealing on Cell Performance.
Briscoe J, Gallardo DE and Dunn S. *Mrs Advances* vol. 1260,.Springer Nature.

Antimony Doped ZnO Nanorods - A Change From n to p Type?.
Briscoe J, Gallardo DE and Dunn S. *Mrs Advances* vol. 1256,.Springer Nature.

2009

In situ antimony doping of solution-grown ZnO nanorods.
Briscoe J, Gallardo DE and Dunn S. *Chem Commun* (10) 1273-1275.