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ACADEMIC QUALIFICATIONS

- Ph.D. (Mech. Mat.), University of Reading, The United Kingdom, 1997
- M.Eng. (Mat. Sci. & Eng.), Hefei University of Technology, China, 1987
- B.Eng. (Met. & Mat. Sci.), China University of Mining and Technology, China, 1984

PROFESSIONAL EXPERIENCE

- March 2000 – present: Professor / Associate Professor / Assistant Professor, School of Materials Science & Engineering, Nanyang Technological University, Singapore
 - April 2011 – March 2018: Director, Advanced Materials Research Centre, Nanyang Technological University, Singapore (concurrent appointment)
 - July 2009 – July 2014: Assistant Chair (Undergraduates), School of Materials Science & Engineering, Nanyang Technological University, Singapore (concurrent appointment)
- April 1997 – March 2000: Research Fellow / Research Associate, Institute of Materials Research and Engineering, Singapore
- May 1992 – April 1997: Research Student Assistant / Visiting Researcher, Department of Engineering, University of Reading, U.K.
- June 1987 – May 1992: Lecturer / Assistant Lecturer, Department of Materials Science and Engineering, Hefei University of Technology, China

RESEARCH INTERESTS

- Thin Films & Nanostructured Materials: Thin films & engineered nanostructures for environmental and clean energy applications; Electronic thin films; Protective and functional surface coatings.
- Mechanical Behavior of Materials: Fracture, fatigue, and creep of bulk monolithic & composite materials, thin films and multi-layers; Experimental and computational mechanics; Materials degradation and failure analysis.

INTERNATIONAL CONFERENCE ORGANIZATION

- Organizer for more than 60 times of international conferences in the capacity of organizing committee members, scientific committee member, technical committee member, and symposium chair, etc.

EDITORSHIP

- Editorial Advisory Board (Mar 2006 – Jan 2019), Circuit World, Emerald (ISSN: 0305-6120)
- Area Editor & Editorial Board (Aug 2009 – Jun 2016), Simulation Modelling Practice and Theory, Elsevier (ISSN: 1569-190X)

- Editorial Committee (Jul 2012 –), China Surface Engineering (中国表面工程), Chinese Mechanical Engineering Society (ISSN: 1007-9289)
- Editorial Board (Jun 2014 – Dec 2020), Mechanics of Advanced Materials and Modern Processes, Springer (ISSN: 2198-7874)
- Editor (May 2017 –) of Mechanics of Advanced Materials book series, Elsevier
- Editorial Board (Nov 2017 –), Surfaces, MDPI AG, Switzerland (ISSN: 0004-0004)
- Editorial Board (May 2018 –) of Surface Technology (表面技术), published by China South Industries Group Corporation (ISSN: 1001-3660)

- Guest Editor, Key Engineering Materials, Vol. 227: Special issue on “Modeling of Materials”, Trans Tech Publications 2002 (ISSN: 1013-9826)
- Guest Editor, Materials Science and Engineering A, Vol. 423 (Nos. 1-2): Special issue on “Mechanical Behaviour of Micro- and Nano-scale Systems”, Elsevier 2006 (ISSN: 0921-5093)
- Guest Editor, Thin Solid Films, Vol. 517 (No. 17), Elsevier 2009 (ISSN: 0040-6090)
- Guest Editor, Journal of Nanoscience and Nanotechnology, Vol. 10 (No. 7), American Scientific Publishers 2010 (ISSN: 1533-4880)
- Guest Editor, International Journal of Modern Physics B, Vol. 24 (Nos. 1-2), World Scientific 2010 (ISSN: 0217-9792)
- Guest Editor, Thin Solid Films, Vol. 519 (No. 15), Elsevier 2011 (ISSN: 0040-6090)
- Guest Editor, Thin Solid Films, Vol. 544, Elsevier 2013 (ISSN: 0040-6090)
- Guest Editor, Thin Solid Films, Vol. 584, Elsevier 2015 (ISSN: 0040-6090)
- Guest Editor, Journal of Nanomaterials: Special issue on “TiO₂-based Nanomaterials: Design, Synthesis, and Applications”, Hindawi Pub. Corp. 2015 (ISSN: 1687-4110)
- Guest Editor, Materials and Design, Virtual Special Issue on “Recent Advances in Materials for Sports Technology”, Elsevier 2016 (ISSN: 0261-3069)
- Guest Editor, Surface and Coatings Technology, Vol. 320, Elsevier 2017 (ISSN: 0257-8972)
- Guest Editor, Materials and Design, Virtual Special Issue on “Materials and Design for Sports Technology”, published by Elsevier 2018 (ISSN: 0261-3069)
- Guest Editor, Coatings, Special issue on “Thin Films for Energy Harvesting, Conversion, and Storage”, MDPI 2019 (ISSN: 2079-6412)
- Guest Editor, Surface and Coatings Technology, Virtual Special Issue for Thin Films 2018 papers, Elsevier 2019 (ISSN: 0257-8972)

REVIEWER FOR INTERNATIONAL JOURNALS

ACS Applied Materials & Interfaces; ACS Materials Letters; ACS Omega; ACS Sustainable Chemistry & Engineering; Acta Materialia; Advanced Functional Materials; Advanced Materials; Angewandte Chemie; Applied Catalysis A: General; Applied Catalysis B: Environmental; Applied Physics Letters; Applied Surface Science; Beilstein Journal of Nanotechnology; Chemical Engineering Journal; Chinese Journal of Catalysis; Circuit World; Composites Science and Technology; CrystEngComm; Electrochemistry Communications; Energy & Environmental Science; Engineering Fracture Mechanics; Environmental Science & Technology; IEEE Transactions on Advanced Packaging; IEEE Transactions on Components and Packaging Technologies; IEEE Transactions on Device and Materials Reliability; IEEE Transactions on Electronics Packaging Manufacturing; International Journal of Computational Methods; International Journal of Fracture; International Journal of Modern Physics B; International Journal of Photoenergy; Journal of Alloys and Compounds; Journal of Applied Physics; Journal of Colloid and Interface Science; Journal of Composite Materials; Journal of Electronic Materials; Journal of Electronic Packaging; Journal of Hazardous Materials; Journal of Materials Chemistry; Journal of Materials Research; Journal of

Materials Science; Materials in Electronics; Journal of Mechanical Engineering Science; Journal of Molecular Catalysis A: Chemical; Journal of Nanoscience and Nanotechnology; Journal of Solid State Chemistry; Key Engineering Materials; Korean Journal of Chemical Engineering; Langmuir; Materials Chemistry and Physics; Materials and Design; Materials Letters; Materials Science and Engineering A; Materials Science and Engineering B; Mechanics of Advanced Materials and Modern Processes; Metallurgical and Materials Transactions A; Microelectronic Engineering; Microelectronics Reliability; Microsystem Technologies; Molecules; Nanoscale; Nanoscience and Nanotechnology Letters; Nature Catalysis; Nature Communications; Physical Chemistry Chemical Physics; Polymers for Advanced Technologies; Progress in Organic Coatings; RSC Advances; Scientific Reports; Scripta Materialia; Semiconductor Science and Technology; Simulation Modelling Practice and Theory; Small; Soldering & Surface Mount Technology; Solid State Phenomena; Spectroscopy and Spectral Analysis; Surface and Coatings Technology; Surface and Interface Analysis; The Journal of Physical Chemistry; The Journal of Physical Chemistry Letters; Thin Solid Films; Tribology International

SELECTED RESEARCH PROJECTS (in reverse chronological order)

- “Surface Functionalization of Polymeric Materials using Plasma Technique towards Practical Applications”, MOE Tier 1 grant RG 8/21, 01 Nov 2021-31 Oct 2023, Principal Investigator
- “Distribution Switchgear Degradation Study”, jointly funded by SP PowerAssets Ltd (SP) and Energy Market Authority (EMA), Jan 2021-Dec 2023, Principal Investigator
- “Internet of Things”, funded under NRF IAF-ICP scheme, Jan 2019-Jan 2024, Program Principal Investigator
- “Soft Magnetic Materials Development for High Performance Aerospace Electrical Machines”, funded under NRF IAF-ICP scheme, Jan 2019-Jan 2024, Principal Investigator
- “Fast treatment of gaseous pollutants through synergistic photocatalytic-plasma actions”, MOE Tier 1 grant RG 16/18, Nov 2018-Oct 2021, Principal Investigator
- “Quantifying the effect of lattice defects in semiconductor oxides towards more efficient photoelectrochemical fuel generation”, MOE Tier 1 grant RG 15/16, Nov 2016-Oct 2018, Principal Investigator
- “Development of water based bio-epoxy coatings for easy-cleaning, anti-corrosion and anti-icing applications”, A*Star SERC Grant No. 1528000048, Feb 2016-Jan 2019, Principal Investigator
- “Project SMART”, Industry funded, Jan 2016-Dec 2019, Principal Investigator
- “Intermetallic Compound Formation between Palladium-coated Copper Wires and Aluminum Bond Pad”, International collaboration programme funded by NTU, Jul 2015-Jun 2016, Principal Investigator
- “Application-driven understanding and engineering of materials structures”, internal grant awarded by CoE NTU, Mar 2014-Feb 2017, Principal Investigator
- “Development of efficient photocatalysts for solar fuel generation” (A sub-project funded by the Singapore Berkeley Institute for Sustainable Energy through NRF’s CREATE scheme), Apr 2013-Mar 2018, project Principal Investigator
- “Braided Composite Modelling – Failure Analysis and Progressive Damage Prediction”, funded by Defence Research & Technology Office (DRTech), Dec 2012-Nov 2015, Principal Investigator
- “Electrodeposition of gold and nickel films for smart card application”, Industry funded, Aug 2012-Aug 2016, Principal Investigator
- “Study of process responses, intermetallics and reliability of palladium-copper wire bonding”, Industry funded, Jan 2012-Jan 2016, Principal Investigator

- “Multi-functional sol-gel coatings for wind-turbine blade protection”, Industry funded, Sep 2011-Sep 2014, Principal Investigator
- “Modelling of Braided Textile Composites”, funded by Defence Science and Technology Agency (DSTA) TL/POD0814080/01, Jun 2009-Sep 2012, Principal Investigator
- “Low-temperature Solution-processed Protonated Titanium Oxides for Photocatalytic Applications”, National Research Foundation (NRF) / Environment and Water Industry Development Council (EWI) grant MEWR 651/06/160, Jan 2009-Dec 2011, Principal Investigator
- “Ultra-fine Pitch Copper Interconnections for Future Generation Miniaturised Devices”, The British Council PMI2 Strategic Alliances and Partnerships project (Research Co-operation strand) RC 41, Apr 2008-Dec 2010, Lead Researcher
- “Development of Damage- and Failure-Resistant Nanostructured and Interfacial Materials”, University Research Committee RG 31/06, Oct 2006-Oct 2008, Principal Investigator
- “Design and Construction of A Photocatalytic Reactor for Hydrogen Generation”, Office of Research, Nanyang Technological University RG 112/05, Feb 2006-Feb 2007, Principal Investigator
- “Nanostructured Materials, Systems and Devices”, University Research Council RG 14/03, Apr 2004-Apr 2007, Principal Investigator
- “Intrinsic Stress in Electroless Nickel Plating and Its Effect on Reliability”, NTU AcRF grant RG 19/00, Dec 2000-Nov 2003, Principal Investigator

SERVICES HIGHLIGHT (MSE / NTU) (in reverse chronological order)

- Chair of EAB Accreditation Committee, Bachelor of Materials Engineering
- Senator of the Academic Council, NTU
- Chair, School / College Search Committee for new faculty appointment (at all levels)
- Chair, School Review Committee for Promotions and Tenure
- Chair, Committee for Students’ Global Experience, School of MSE
- Director, Advanced Materials Research Centre, NTU
- Assistant Chair (Undergraduates), School of MSE
- Chair, Nanyang Research Program Committee, NTU
- Member, Singapore Science and Engineering Fair Working Committee, Ministry of Education Singapore
- Member, Curriculum Review Committee, School of MSE
- Member, Aerospace Engineering Task Force & Curriculum Committee, NTU
- Member, MSE School Advisory Committee (appointed by NTU president)
- Lab Director, Surface Engineering Lab, School of MSE
- Final Year Project Coordinator, School of MSE

PUBLICATIONS (in reverse chronological order)

Patents (granted, based on filing date)

1. US Patent 10,851,265 (filed on 01 Aug 2019; **granted** on 01 December 2020), “Polymeric Composition with Anti-icing and Self-cleaning Properties”
2. US Patent 10,355,366 (filed on 25 May 2016; **granted** on 16 July 2019), “Microwave Absorbing Composite For Turbine Blade Applications”
3. Singapore Patent 183898 (filed on 04 September 2012; **granted** on 30 Sep 2013) / US Patent 9,738,986 (filed on 08 March 2011; **granted** on 22 Aug 2017), “Method Of Manufacturing Layered Metal Oxide Particles And Layered Metal Oxide Particles Formed Thereof”
4. Singapore Patent 178248 (filed on 11 Aug 2010; **granted** on 30 Apr 2012) / US Patent 9,868,109 (filed on 11 Aug 2010; **granted** on 16 Jan 2018), “Titanate / Titania Composite Nanoparticle”
5. US Patent 8,647,922 (filed on 08 Nov 2007; **granted** on 11 Feb 2014), “Method of Forming an Interconnect on a Semiconductor Substrate”
6. US Patent 6,776,050 (filed on 28 Sep 2001; **granted** on 17 Aug 2004), “Support for Bending Test of Flexible Substrates”

7. US Patent 6,797,211 (filed on 13 Jun 2001; **granted** on 28 Sep 2004) / Taiwan Patent 529182 (filed on 07 Jul 2000; **granted** on 21 Apr 2003) / European Patent 1133789 (filed on 09 Jul 1999; **granted** on 05 Nov 2008), “Mechanical Patterning of A Device Layer”

Book Chapters

1. Z. Chen, T. T. Lim “Nanostructured Catalytic and Adsorbent Materials for Water Remediation”, Invited contribution of Chapter 4 in: *50 Years of Materials Science in Singapore* (Editors: F. Boey, B. V. R. Chowdari, S. S. Venkatraman), World Scientific Publishing, 2016, pp. 75-111, (ISBN: 9789814730693)
2. Z. Chen, L. Y. L. Wu “Scratch Damage Resistance of Silica-based Sol-Gel Coatings on Polymeric Substrates”, Invited contribution of Chapter 14 in: *Tribology of Polymeric Nanocomposites: Friction and Wear of Bulk Materials and Coatings*, 2nd edition (Book Editors: K. Friedrich and A. K. Schlarb), Elsevier, 2013, pp. 467-511 (ISBN: 9780444594556)
3. Y. K. Lai, C. J. Lin, Z. Chen “Extremely Wetting Pattern by Photocatalytic Lithography and Its Application”, Invited book chapter in *Recent Advances in Nanofabrication Techniques and Applications* (Book Editor: B. Cui), InTech, 2011, pp. 591-614 (ISBN 9789533076027)
4. Z. Chen, L. Y. L. Wu “Scratch Resistance of Protective Sol-Gel Coatings on Polymeric Substrates”, Invited contribution of Chapter 14 in: *Tribology of Polymeric Nanocomposites: Friction and Wear of Bulk Materials and Coatings* (Book Editors: K. Friedrich and A. K. Schlarb), Elsevier, 2008, pp. 325-353 (ISBN: 9780444531551)
5. B. Cotterell, Z. Chen, A. G. Atkins “On the Extension of the J_R Concept to Significant Crack Growth”, Invited contribution to *Multiscale Deformation and Fracture in Materials and Structures*, Solid Mechanics and Its Applications series - Volume 84 (The James R. Rice 60th Anniversary Volume, edited by T.-J. Chuang and J. W. Rudnicki), Springer, 2002, pp. 223-236 (ISBN: 9781402003813)

Journal Articles (full list in Google Scholar: <https://scholar.google.com.sg/citations?user=JxTQyrEAAA&hl=en>)

2022

1. W. W. Zheng, L. Teng, Y. K. Lai, T. X. Zhu, S. H. Li, X. W. Wu, W. L. Cai, Z. Chen, J. Y. Huang “Magnetic Responsive and Flexible Composite Superhydrophobic Photothermal Film for Passive Anti-icing/Active Deicing”, *Chemical Engineering Journal*, 2022, Vol. 427, Art. No. 130922

2021

2. C. Pratapkumar, S. C. Prashantha, V.G. D. Kumar, M. S. Santosh, C. R. Ravikumar, M. R. Anilkumar, T. S. Shashidhara, C. N. Swamy, A.A. Jahagirdar, M. W. Alam, Z. Chen, X.-T. Bui “Structural, photocatalytic and electrochemical studies on facile combustion synthesized low-cost nano Chromium (III) doped polycrystalline magnesium aluminate spinels”, *Journal of Science: Advanced Materials and Devices*, 2021, Vol. 6, pp. 462-471
3. Z. Q. Li, V. Gill, Y. N. Wang, A. Lambourne, J. T. Oh, Z. Chen “Effect of laminate cutting and annealing treatment on the magnetic properties of Fe₄₉Co₄₉V₂ alloy”, *IEEE Transactions on Magnetics*, 2021, Vol. 57, Art. No. 2000813
4. X. W. Xie, S. H. Li, X. Q. Wang, J. Y. Huang, Z. Chen, W. L. Cai, Y. K. Lai “An effective and low-consumption foam finishing strategy for robust functional fabrics with on-demand special wettability”, *Chemical Engineering Journal*, 2021, Vol. 426, Art. No. 131245
5. V. G. Dileepkumar, C. Pratapkumar, R. Viswanatha, B. M. Basavaraja, R. R. Maphanga, M. Chennabasappa, N. Srinivasa, S. Ashoka, Z. Chen, S. Rtimi, K. Jayaramulu, R. S. Varma, G. Szekely, M. S. Santosh “Nanostructured NaFeS₂ as a Cost-Effective and Robust Electrocatalyst for Hydrogen and Oxygen Evolution with Reduced Overpotentials”, *Chemical Engineering Journal*, 2021, Vol. 426, Art. No. 131315
6. J. S. J. Tan, C. H. Wong, Z. Chen “Janus particle preparation through UV-induced partial photodegradation of spin-coated particle films”, *Langmuir*, 2021, Vol. 37, pp. 8167-8176
7. M. Y. Wang, J. Y. Huang, S. H. Li, Y. M. Ni, X. L. Dong, X. Q. Wang, Z. Chen, X. Li, W. L. Cai, Y. K. Lai “A Sandwich-like Structured Superhydrophobic Fabric for Versatile and Highly Efficient Emulsion Separation”, *Separation and Purification Technology*, 2021, Vol. 275, Art. No. 119253
8. Y. Cheng, S. N. Zhang, S. K. Liu, J. Y. Huang, Z. B. Zhang, X. D. Wang, Z. H. Yu, S. H. Li, Z. Chen, Y. Zhao, Y. K. Lai, X. M. Qian, C. F. Xiao “Fog catcher brushes with environmental friendly slippery alumina micro-needle structured surface for efficient fog-harvesting”, *Journal of Cleaner Production*, 2021, Vol. 315, Art. No. 127862
9. S. L. Zheng, C. Li, Y. P. Zhang, T. F. Xiang, Y. Cao, Q. L. Li, Z. Chen “A general strategy towards superhydrophobic self-cleaning and anti-corrosion metallic surfaces: An example with aluminum alloy”, *Coatings*, 2021, Vol. 11, Art. No. 788
10. H. L. Liu, J. Y. Chen, W. J. Yuan, C. F. Jiang, H. Y. Li, J. Li, Y. J. Li, B. Zhang, Z. Chen “Structure engineering of Fe-based MOF aerogel by Halloysite nanotubes for efficient methylene blue adsorption”, *Journal of Sol-Gel Science and Technology*, 2021, Vol. 99, pp. 55-62
11. X. W. Wu, S. H. Li, J. Y. Huang, Z. Chen, W. L. Cai, Y. K. Lai “Solar-assisted Isotropically Thermoconductive Sponge for Highly Viscous Crude Oil Spill Remediation”, *iScience*, 2021, Vol. 24, Art. No. 102665

12. J. Y. Li, J. Hu, M. K. Zhang, W. Y. Gou, S. Zhang, Z. Chen, Y. Q. Qu, Y. Y. Ma "A fundamental viewpoint on the hydrogen spillover phenomenon of electrocatalytic hydrogen evolution", *Nature Communications*, 2021, Vol. 12, Art. No. 3502
13. S. J. He, J. K. Shi, J. Y. Huang, J. Hu, Y. K. Lai, Z. Chen "Rational designed structured superhydrophobic iron oxide surface towards sustainable anti-corrosion and self-cleaning", *Chemical Engineering Journal*, 2021, Vol. 416, Art. No. 127768
14. Z. Q. Xia, X. Jia, X. Ge, C. T. Ren, Q. Yang, J. Hu, Z. Chen, J. Han, G. Xie, S. P. Chen, S. L. Gao "Tailoring electronic structure and size of ultrastable M-MOFs (M = Co, Ni) with enhanced electroconductivity for high-performance supercapacitor", *Angewandte Chemie International Edition*, 2021, Vol. 60, pp. 10228-10238
15. H. L. Liu, P. Wang, B. Zhang, H. Y. Li, J. Li, Y. J. Li, Z. Chen "Morphology controlled carbon aerogel with enhanced thermal insulation and mechanical properties: a simple route for the regulated synthesis", *Journal of Non-Crystalline Solids*, 2021, Vol. 564, Art. No. 120828
16. T. Rui, G.-P. Lu, X. Zhao, X. Cao, Z. Chen "The Synergistic Catalysis on Co Nanoparticles and CoN_x Sites of Aniline-modified ZIF Derived Co@NCs for Oxidative Esterification of HMF", *Chinese Chemical Letters*, 2021, Vol. 32, pp. 685-690
17. Y. P. Tian, B. W. Que, Y. Y. Luo, M. M. Ju, Y. Tang, X. J. Lou, Z. Chen, W. X. Que "Amino-rich surface-modified MXene as anode for hybrid aqueous proton supercapacitors with superior volumetric capacity", *Journal of Power Sources*, 2021, Vol. 495, Art. No. 229790
18. H. L. Liu, L. T. Zhang, J. Li, H. Y. Li, G. Q. An, Y. J. Li, Z. Chen "Structure and Mechanical Properties of HNTs/SiBCN Ceramic Hybrid Aerogels", *Ceramics International*, 2021, Vol. 47, pp. 9083-9089
19. Y.-Y. Quan, Z. Chen, Y. K. Lai, Z.-S. Huang, H. Q. Li "Recent advances in fabricating durable superhydrophobic surfaces: a review from the aspects of structures and materials", *Materials Chemistry Frontiers*, 2021, Vol. 5, pp. 1655-1682
20. X. L. Dong, S. W. Gao, S. H. Li, T. X. Zhu, J. Y. Huang, Z. Chen, Y. K. Lai "Bioinspired structural and functional designs towards interfacial solar steam generation for clean water production", *Materials Chemistry Frontiers*, 2021, Vol. 5, pp. 1510-1524
21. T. Y. Wang, C. T. Feng, J. Q. Liu, D. J. Wang, H. M. Hu, J. Hu, Z. Chen, G. L. Xue "Bi₂WO₆ hollow microspheres with high specific surface area and oxygen vacancies for efficient photocatalysis N₂ fixation", *Chemical Engineering Journal*, 2021, Vol. 414, Art. No. 128827
22. M. Q. Yao, J. Y. Ge, B. L. Sun, J. Hu, S. W. Koh, Y. X. Zhao, J. P. Fei, Z. X. Sun, W. Hong, Z. Chen, W. C. Hu, H. Li "Solar-driven hydrogen generation coupled with urea electrolysis by an oxygen vacancy-rich catalyst", *Chemical Engineering Journal*, 2021, Vol. 414, Art. No. 128753
23. H. L. Liu, B. Gao, W. J. Yuan, H. Y. Li, J. Li, Y. J. Li, B. Zhang, Z. Chen "Modification of graphene aerogel with titania nanotubes for efficient methylene blue adsorption kinetics", *Journal of Sol-Gel Science and Technology*, 2021, Vol. 97, pp. 271-280
24. X. H. Wu, F. Yang, G. P. Lu, X. Zhao, Z. Chen, S. Z. Qian "A Breathable and Environmentally Friendly Superhydrophobic Coating for Anti-condensation Applications", *Chemical Engineering Journal*, 2021, Vol. 412, Art. No. 128725
25. H. L. Liu, P. Wang, B. Zhang, H. Y. Li, J. Li, Y. J. Li, Z. Chen "Enhanced thermal shrinkage behavior of phenolic-derived carbon aerogel-reinforced by HNTs with superior compressive strength performance", *Ceramics International*, 2021, Vol. 47, pp. 6487-6495
26. J. N. Dong, X. N. Zhan, J. Y. Huang, J. Hu, Z. Chen, Y. K. Lai "In-situ formation of unsaturated defect sites on converted CoNi alloy/Co-Ni LDH to activate MoS₂ nanosheets for pH-universal hydrogen evolution reaction", *Chemical Engineering Journal*, 2021, Vol. 412, Art. No. 128556
27. Y. M. Ni, J. Y. Huang, S. H. Li, X. Q. Wang, L. X. Liu, M. Y. Wang, Z. Chen, X. Li, Y. K. Lai "Underwater, Multifunctional Superhydrophobic Sensor for Human Motion Detection", *ACS Applied Materials & Interfaces*, 2021, Vol. 13, pp. 4740-4749
28. W. W. Zheng, J. Y. Huang, S. H. Li, M. Z. Ge, L. Teng, Z. Chen, Y. K. Lai "Advanced Materials with Special Wettability toward Intelligent Oily Wastewater Remediation", *ACS Applied Materials & Interfaces*, 2021, Vol. 13, pp. 67-87
29. X. Q. Wang, S. H. Li, J. Y. Huang, J. J. Mao, Y. Cheng, L. Teng, Z. Chen, Y. K. Lai "A multifunctional and environmentally-friendly method to fabricate superhydrophilic and self-healing coatings for sustainable antifogging", *Chemical Engineering Journal*, 2021, Vol. 409, Art. No. 128228
30. Y. Bian, J. J. Ni, C. Wang, J. M. Zhen, H. G. Hao, X. J. Kong, H. Chen, J. Li, X. Q. Li, Z. F. Jia, W. Luo, Z. Chen "Microstructure and wear characteristics of in-situ micro/nanoscale niobium carbide reinforced copper composites fabricated through powder metallurgy", *Materials Characterization*, 2021, Vol. 172, Art. No. 110847
31. X. W. Wu, Y. G. Lei, S. H. Li, J. Y. Huang, L. Teng, Z. Chen, Y. K. Lai "Photothermal and Joule heating-assisted thermal management sponge for efficient cleanup of highly viscous crude oil", *Journal of Hazardous Materials*, 2021, Vol. 403, Art. No. 124090

32. Y. Xie, F. Guo, J. J. Mao, J. Y. Huang, Z. Chen, Y. X. Jian, Y. K. Lai “Freestanding MoS₂@carbonized cellulose aerogel derived from waste cotton for sustainable and highly efficient particulate matter capturing”, *Separation and Purification Technology*, 2021, Vol. 254, Art. No. 117571
33. Z. H. Yu, H. M. Zhang, J. Y. Huang, S. H. Li, S. N. Zhang, Y. Cheng, J. J. Mao, X. L. Dong, S. W. Gao, S. C. Wang, Z. Chen, Y. X. Jiang, Y. K. Lai “Namib desert beetle inspired special patterned fabric with programmable and gradient wettability for efficient fog harvesting”, *Journal of Materials Science & Technology*, 2021, Vol. 61, pp. 85-92

2020

34. J. Y. Feng, X. Zhao, B. W. Zhang, G. Yang, Q. F. Qian, S. S. K. Ma, Z. Chen, Z. S. Li, Y. Z. Huang “Sol-gel synthesis of highly reproducible WO₃ photoanodes for solar water oxidation”, *Science China Materials*, 2020, Vol. 63, pp. 2261-2271
35. Y. T. Zhang, J. Li, H. L. Liu, Y. J. Li, J. M. Rui, H. P. Da, Z. Chen “Microencapsulated phase change materials composited Al₂O₃-SiO₂ aerogel and the thermal regulation properties”, *Journal of Sol-Gel Science and Technology*, 2020, Vol. 96, pp. 627-635
36. X. H. Wu, Y. Z. Shen, S. L. Zheng, Z.-T. Hu, Z. Chen “Clarifying the Correlation of Ice Adhesion Strength with Water Wettability and Surface Characteristics”, *Langmuir*, 2020, Vol. 36, pp. 12190-12201
37. N. S. Nobeen, G. X. Yan, C. L. Gan, Z. Chen “Ag-Sn transient liquid phase bonding for high temperature electronic packaging: effect of Ag content”, *IEEE Transactions on Components, Packaging and Manufacturing Technology*, 2020, Vol. 10, pp. 1604-1610
38. D. A. Bellido-Aguilar, S. L. Zheng, Y. J. Huang, Y. Sun, X. T. Zeng, Q. C. Zhang, Z. Chen “Hydrophobization of fully bio-based epoxy polymers using water as solvent: effect of additives”, *European Polymer Journal*, 2020, Vol. 140, Art. No. 110043
39. J. Hu, X. Zhao, W. Chen, S. L. Zhang, Z. Chen “Mechanistic study of monolayer NiP₂ (100) towards solar hydrogen production”, *Solar RRL*, 2020, Vol. 4, Art. No. 1900360
40. N. Agrawal, P. S. J. Low, J. S. J. Tan, E. W. M. Fong, Y. K. Lai, Z. Chen “Durable easy-cleaning and antibacterial cotton fabrics using fluorine-free silane coupling agents and CuO nanoparticles”, *Nano Materials Science*, 2020, Vol. 2, pp. 281-291
41. B. Ji, G. X. Yan, W. F. Zhao, X. Zhao, J. J. Ni, J. L. Duan, Z. Chen, Z. Yang “Titanium mesh-supported TiO₂ nano-film for the photocatalytic degradation of ethylene under a UV-LED”, *Ceramics International*, 2020, Vol. 46, pp. 20830-20837
42. J. Liu, X. T. Yin, Y. X. Guo, M. D. Que, J. Chen, Z. Chen, W. X. Que “Influences of Hole Transport Layer/Perovskite Interface on Hysteresis Behavior of Inverted Perovskite Solar Cells”, *ACS Applied Energy Materials*, 2020, Vol. 3, pp. 6391-6399
43. B. R. Zhao, P. Liu, S. Li, H. F. Shi, X. Z. Jia, Q. Q. Wang, F. Yang, Z. W. Song, C. Guo, J. Hu, Z. Chen, X. L. Yan, X. X. Ma “Bimetallic Ni-Co nanoparticles on SiO₂ as robust catalyst for CO methanation: Effect of homogeneity of Ni-Co alloy”, *Applied Catalysis B: Environmental*, 2020, Vol. 278, Art. No. 119307
44. Y. Sun, B. Ouyang, R. S. Rawat, Z. Chen “Rapid and stable plasma transformation of polyester fabrics for highly efficient oil-water separation”, *Global Challenges*, 2020, Vol. 4, Art. No. 1900095
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