CURRICULUM VITAE of CHUN CHENG

IDENTIFYING INFORMATION

Chun CHENG
Birth: 8th Feb, 1981

Tenured Associate Professor,
Department of Science and Technology, Engineering College
Southern University of Science and Technology, Shenzhen, 518055 China
"Advanced Materials – Micro/Nano Structure Regulation and Application Laboratory (AMRAL)"
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Academic Rank

- **~200 Publications, > 7600 citations, H-index 50；8 issued patents**; ~120 first/corresponding author papers, > 50 on Journals with IF> 10, including Joule, Nature Communications, Advanced (Energy) Materials (5), ACS Nano (7), Advanced Functional Materials (4), Angew. Chem. Int. Ed., Advanced Science (2), Small (3), Applied Physical Reviews (2), Applied Catalysis B (3), Nano-Micro letters (2), Nano Energy (3), Journal of Materials Chemistry A (10), Chemical Engineering Journal (2), Energy Storage Materials, Energy Environmental Materials (2) etc.
- World's Top 2% Scientists, 2023

Education

Degree	Institution	Date Degree Granted
PhD	The Hong Kong University of Science and Technology, Hong Kong, China Supervisor: Prof. Ning Wang (王宁)	July. 01, 2009
MSc	Central China Normal University, China Supervisor: Prof. Chengchun Tang (唐成春)	July. 01, 2004
BSc	Central China Normal University, China Supervisor: Prof. Shouren Qi (祁守仁)	July. 01, 2002

Positions/Employment

- 2020/06/01-present Tenured Associate Professor/Department of Materials Science and Engineering, Southern University of Science and Technology, China
- 2013/06/01-2020/05/30 Tenure-Track Associate Professor/Department of Materials Science and Engineering, Southern University of Science and Technology, China
- 2011/05/01-2013/03/01 Postdoctoral Employee/ Department of Materials Science and Engineering, University of California, Berkeley, USA；Supervisor: Prof. Junqiao Wu (吴军桥) & Costas. P. Grigoropoulos
- 2009/09/01-2011/04/01 Postdoctoral Fellow/ Department of Physics, The Hong Kong

University of Science and Technology, Hongkong, China; Supervisor: Prof. Ning Wang (王宁)

Current Membership in Professional Organizations

- Member of Chinese Materials Research Society (CMRS), China
- Member of Materials Research Society (MRS), USA

HONORS AND AWARDS FOR RESEARCH/CREATIVE WORK, TEACHING, PUBLIC ENGAGEMENT, AND SERVICE

RESEARCH/CREATIVE WORK

External Sources

- World's Top 2% Scientists (全球前 2%顶尖科学家), 2023
- The 2022 Global Academic Impact Ranking (2022 全球学者学术影响力排行榜), 2022
- "Second Prize of Shenzhen Natural Science Award(深圳市自然科学奖二等奖)", Rank 3/5, 2022
- "Shenzhen High-level talent Early Carrer Award (Local Leader) (深圳市高层次地方领军人才)", 2020
- Best Poster Award (nomination)(最佳展报提名奖), MRS Fall Meeting, 2016
- Core Member of Key Area Innovative Research Group of the Ministry of Science and Technology of China (科技部创新团队核心成员), 2016
- "Guangdong Distinguished Young Scholars(广东省杰出青年基金)", 2015
- "Guangdong Outstanding Young Scholar in Science and Technology Innovation(广东省科技创新青年拔尖人才)", 2016
- "Guangdong Outstanding Young Teacher Scholar(广东省优秀青年教师基金)", 2015
- "Shenzhen Youth Science and Technology Award(深圳青年科技奖)", 2016
- "Shenzhen Peacock Plan Early Carrer Award (Level B) (深圳市高层次孔雀 B 类人才)", 2013
- "Excellent graduate thesis of Hubei Province(湖北省优秀硕士论文)", 2004
- "First prize of Hubei Outstanding Scientific Research Achievements for undergraduates(本科生优秀科研成果一等奖)", 2001
- "Young Researcher Awards (青年科研奖)", 2016

TEACHING

- "First Prize of Shenzhen Education, Teaching and Research Outstanding Achievement Award (深圳市教育教学科研优秀成果奖一等奖)", Rank 1/6, 2021
- Excellent advisor (优秀指导教师) of Shenzhen-Hong Kong-Macao college Student Maker Competition, 2021
- "National Excellent Teacher (**全国优秀教师**) ", 2019 (the only one awarded in SUSTech)
- "Southern Guangdong Excellent Teacher (南粤优秀教师)", 2018
- "Shen Zhen Excellent Teacher (深圳优秀教师)", 2018
- "Excellent College Tutor (优秀书院导师)", SUSTech, 2022
- "Outstanding Teaching Award (杰出教学奖)", SUSTech, 2018
- "First Prize of Teaching Achievement Award (教学成果奖一等奖)", SUSTech, Rank 1/12, 2019
- "Excellent College Tutor (优秀书院导师)", SUSTech, 2016, 2018

- “Excellence Award” of Youth Teacher Teaching Competition (青年教师教学竞赛优秀奖), SUSTech, 2016

PUBLIC ENGAGEMENT, AND SERVICE

- "Ten-Year Service Award (十年服务奖)", SUSTech, 2023
- “Honorary Certificate of Science Popularization (科普荣誉证书)”, SUSTech, 2021
- "Advanced Individual in Recruitment Work (招生先进个人)", SUSTech,2020-2023
- "Advanced Individual in Recruitment Work (招生先进个人)", SUSTech, 2015-2017, 2019
- "Five-Year Service Award (五年服务奖)", SUSTech, 2018
- “Excellent Group(优秀团队)” of the First Shenlong Entrepreneur Star Training Camp, Shenzhen, 2015

RESEARCH

Grants and Contract

Summary:

2013 – Present, at Southern University of Science and Technology, 22 grants. 21 completed and 1 currently active. 15 as PI, 7 as co-investigator. From 6 different funding agencies. Approximately ¥74.52 Million in total, of which I direct ¥23.49 Million.

External Sources

Received at the Southern University of Science and Technology (SUSTech)

Currently active projects:

1. PI: “Research on "integrated" modification of high-performance perovskite solar cells”; Shenzhen stable support plan for Universities; Grant No.NA; Period: 2023/10-2025/09; Amount: ¥ 0.5 Million

Completed projects:

1. PI: “Research on High-Performance Microactuators Based on Super-Aligned Vanadium Dioxide Nanowires Thin Film”; Cultivation Project of National Natural Science Foundation of China, Grant No. 91963129; Period: 2020/01-2022/12; Amount: ¥ 0.6 Million
2. PI: “Research on high performance thin film microactuators for micro-robots”; Shenzhen Knowledge Innovation Program-Basic Research (Discipline Layout) Project; Grant No. JCYJ20180504165655180; Period: 2019/01-2021/12; Amount: ¥ 3.0 Million
3. PI: “Near Field Interfacial Heat Transfer and Thermal Energy Control Based on Single Domain Phase Transition Characteristics of Vanadium Dioxide”; The General Program of National Natural Science Foundation of China; Grant No. 51776094; Period: 2018/01-2021/12; Amount: ¥ 0.6 Million
4. PI: “Scalable synthesis of VO2 nanowires and their application in thermal micro-actuators”; The Guangdong Natural Science Funds for Distinguished Young Scholars; Grant No. 2015A030306044; Period: 2016/01-2019/12; Amount: ¥ 1.0 Million
5. PI: “Fabrication and device study of two-dimensional materials for flexible electronics”; The

Guangdong Province Science and Technology Development Special Fund (frontier and key technology innovation direction)-Guangdong-Hong Kong joint innovation project; Grant No. 2016A050503012; Period: 2016/01-2018/6; Amount: ¥ 1.0 Million

6. PI: Training Program for Outstanding Young Teachers at Higher Education Institutions of Guangdong Province; Grant No. YQ2015151; Period: 2016/01-2018/12; Amount: ¥ 1.0 Million
7. PI: Talent Planning Program-- Guangdong High-level Personnel of Special Support Program "Outstanding young scholar in science and technology innovation"; Grant No. 201527047; Period: 2016/01-2018/12; Amount: ¥ 0.3 Million
8. PI: "Near-field optical absorption measurement and interface thermal transport based on VO2 nanowire single-domain phase transition"; The Youth Program of National Natural Science Foundation of China; Grant No. 51406075; Period: 2014/01-2017/12; Amount: ¥ 0.26 Million
9. PI: "In-situ study of vanadium dioxide micro-nanowire growth and the preparation of its super-aligned array"; Scientific Research Staring Foundation for the Returned Overseas Chinese Scholars, Ministry of Education of China; Grant No. K14251201; Period: 2014/01-2017/12; Amount: ¥ 0.03 Million
10. PI: "Preparation of ultrathin vanadium oxide two-dimensional materials and their application in flexible energy storage devices"; Foundation of Shenzhen Science and Technology Innovation Committee; Grant No. JCYJ20150331101823695; Period: 2016/01-2018/12; Amount: ¥ 0.3 Million
11. PI: "Controllable synthesis of vanadium dioxide micro nanowire and its application", Research start-up fund, Shenzhen, Grant No.NA; Period: 2014/07-2017/07, Amount: ¥ 4.94 Million
12. Co-Investigator: Key Laboratory of Energy Conversion and Storage Technology (Southern University of Science and Technology)， Ministry of Education, Grant No. NA, Period: 2020/01-2022/12; Amount: ¥ 0.26 (distributed funds)/project funds: 3 Million
13. Co-Investigator: Guangdong-hong Kong-Macao Joint Laboratory of Photothermal Energy Materials and Devices, Grant No. 2019B121205001, Period: 2020/01-2022/12; Amount: ¥ 0.0 (distributed funds)/project funds: 5 Million
14. Co-PI (deputy director): Shenzhen Flexible Solar Cell R&D Engineering Research Center-Shenzhen New Energy Industry Project Support Program; Grant No. (N/A); Period: 2019/7-2022/6; Amount: ¥ 2 (distributed fund)/5 million
15. Co-Investigator: Guangdong Province Key Laboratory of Electric Drive Energy and Materials, Grant No. 2018B030322001, Period: 2018/09-2021/09; Amount: ¥ 0.30 (distributed funds)/project funds: 3 Million
16. Co-Investigator: "Design and preparation of key materials for perovskite solar cells and high-performance flexible devices"; The National Key Research and Development Project of the Ministry of Science and Technology of China; Grant No. 2016YFA0202400; Period: 2017/01-2020/12; Amount: ¥ 2.5 (distributed fund)/8.4875/33.95 Million
17. Co-Investigator: "Development and industrialization of new perovskite solar cells"; Shenzhen Peacock Team Plan; Grant No. KQTD2015033110182370; Period: 2015/01-2019/12; Amount: ¥ 4.0 (distributed fund)/15 Million
18. Co-Investigator: Shenzhen Key Laboratory of Nanoimprint Technology--Shenzhen Science

and Technology Research and Development Project; Grant No. ZDSYS20140509142721431; Period: 2014/01-2016/12; Amount: ¥ 0.4 (distributed fund)/5 Million

University Sources

1. PI：Department Head Special Fund, MSE, SUSTech, 2023, Amount: ¥ 0.05 Million
2. PI：Department Head Special Fund, MSE, SUSTech, 2021, Amount: ¥ 0.05 Million
3. PI: "Controllable synthesis of vanadium dioxide micro nanowire and its application", Research start-up fund matching, SUSTech, 2014/07-2017/07, ¥ 1 Million

Publications

Books or Monographs

1. B. N. Chandrashekar, A. S. Smitha, K. Jagadish, Namratha, S. Srikantaswamy, B. E. Swamy Kumara, K. K. Sadasivuni, D. Ponnamma, K. Byrappa*, C. Cheng*, Chapter: Functional Nanomaterials for Transparent Electrodes in Book "Smart Polymer Nanocomposites-Energy harvesting, Self-healing and Shape memory" Part of the series Springer Series on Polymer and Composite Materials, 345-376 Publisher-Springer International Publishing, 2017
2. The paper "What about a robot that can run on heat" (Run Shi and Chun Cheng) in the Book of "100,000 high-tech why" 2st Album, Guangdong Science and Technology Press, 2021

Refereed Journal Articles

Papers submitted:

1. Qing Lian#, Lina Wang#, Guoliang Wang#, Bowei Li#, Joel Smith, Pietro Caprioglio, Manuel Kober-Czerny, Deng Wang, Jiong Yang, Sibo Li, Xiao Liang, Shaokuan Gong, Dongyang Li, Hanlin Hu, Xihan Chen, Xugang Guo, Longbin Qiu, Baomin Xu, Gang Li, Anita Ho-Baillie, Wei Zhang*, Guangfu Luo*, Henry Snaith*, **Chun Cheng***, An integral molecular design for 26.0%-efficient inverted perovskite solar cells with fill factor exceeding 0.87, submitted to **Nature**, in peer review, 2023 (**World record fill factor of perovskite solar cells**)
2. Zefei Wu, Mengli Hu, Meizhen Huang, Xiangbin Cai, Yaqi Ma, Shi Wang, Zishu Zhou, Yong Chen, Xuemeng Feng, Kam Tuen Law, **Chun Cheng***, Junwei Liu*, Ning Wang*, Towards Nanoscale Topological Devices with Quantized Conductance, submitted to **Nature**, in peer review, 2023 (**Quantum spin Hall effect in nanoscale devices at temperatures up to 50 K**)

Papers published:

SCI Papers (co-authored ~200 and 117 first/corresponding author)

201 Multiscale understand the tuning photocatalytic hydrogen evolution performances of BiOCl stemmed from engineered crystal facet, **Applied Surface Science**, 2024, Accepted

200 Ziteng Zuo#, Xian Zhang#, Ouwen Peng, Lianwei Shan, Shengling Xiang, Qing Lian, Ningxue Li, Guojun Mi, Abbas Amini and **Chun Cheng***, Self-supported iron-based bimetallic phosphide catalytic electrode for efficient hydrogen evolution reaction at high current density, **Journal of Materials Chemistry A,** 2024, Revision.

199 Ruihua Ling, Tong Lu, Abbas Amini, Hao Yang*, **Chun Cheng***, Rise of wood-based catalytic electrodes for large-scale hydrogen production, **Materials Chemistry Frontiers**, 2024,

Accepted.

198 Zhiyong Wang, Qingshun Dong*, Ying Yan*, Zikeng Fang, Guojun Mi, Mingzhu Pei, Shuhong Wang, Linghui Zhang, Jing Liu, Min Chen, Hongru Ma, Ruiting Wang, Jie Zhang, **Chun Cheng**, Yantao Shi*, Al_2O_3 nanoparticles as surface modifier enables deposition of high quality perovskite films for ultra-flexible photovoltaics. **Advanced Powder Materials**, 2024, 3. 100142.

197 Narjes Firouzkouhi, Abbas Amini*, Ahmed Bani-Mustafa, Arash Mehdizadeh, Sadeq Damrah, Ahmad Gholami, **Chun Cheng**, Bijan Davvaz, Generalized fuzzy hypergraph for link prediction and identification of influencers in dynamic social media networks, **Expert Systems with Applications**, 2024, 238, 121736.

196 Narjes Firouzkouhi, Abbas Amini*, Marziyeh Nazari, Fadi Alkhatib, Hashem Bordbar, **Chun Cheng**, Bijan Davvaz, Maria Rashidi, Advanced artificial intelligence system by intuitionistic fuzzy -subring for automotive robotic manufacturing, **Artificial Intelligence Review**, 2023, 56, 9639.

195 Narjes Firouzkouhi, Abbas Amini*, Fadi Alkhatib, Ahmed Bani-Mustafa, **Chun Cheng**, Bijan Davvaz, Global E-Commerce (GeC) theory by intuitionistic fuzzy Γ-submodule, **Engineering Applications of Artificial Intelligence**, 2023, 123, 106252.

194 Smitha Ankanahalli Shankaregowda, Chandrashekar Bananakere Nanjegowda, Shirong Guan, Jiaqi Huang, Jingyi Li, Rumana Farheen Sagade Muktar Ahmed, Krishnaveni Sannathammegowda*, Anandraju Madaveeranahally Boregowda, Fei Wang*, **Chun Cheng***, A robust triboelectric nanogenerator resistant to humidity and temperature in ambient environment, **Physica Status Solidi-Rapid Research Letters**, 2023, 17, 2200489.

193 Azad Hajar, Mohsennia Mohsen*, **Chun Cheng**, Amini Abbas*, Alkaline treatment of antifoulant PVB/SA-grafted ε-MnO_2 adsorptive nanocomposite membrane for synchronous separation of pollutants from pharmaceutical effluents, **Journal of Water Process Engineering**, 2023, 53, 103756.

192 Guoliang Wang, Jianghui Zheng*, Weiyuan Duan, Jiong Yang, Md Arafat Mahmud, QingLian, Shi Tang, Chwenhaw Liao, Jueming Bing, Jianpeng Yi, Tik Lun Leung, Xin Cui, Hongjun Chen, Feng Jiang, Yulan Huang, Andreas Lambertz, Marko Jankovec, Marko Topic, Stephen Bremner, YuanZhu Zhang, **Chun Cheng***, Kaining Ding*, Anita Ho-Baillie*, Molecular Engineering of Hole-selective Layer for High Band Gap Perovskites for Highly Efficient and Stable Perovskite-silicon Tandem Solar Cells, **Joule**, 2023, 7, 2583.

191 Qicheng Zhang, Lei Xu, Xinyang Yue*, Jijiang Liu, Xin Wang, Xiaoya He, Zidan Shi, Shuzhang Niu*, Wei Gao, **Chun Cheng***, Zheng Liang*, Catalytic current collector design to accelerate $LiNO_3$ decomposition for high-performing lithium metal batteries, **Advanced Energy Materials,** 2023, 13, 2302620.

190 Meizhen Huang#, Zefei Wu#*, Xu Zhang#, Xuemeng Feng, Zishu Zhou, Shi Wang, Yong Chen, **Chun Cheng**, Kai Sun, Zi Yang Meng*, and Ning Wang*, Intrinsic nonlinear hall effect and gate-switchable berry curvature sliding in twisted bilayer graphene, Meizhen Huang, **Physical Review Letters,** 2023, 131, 066301.

189 Yulan Huang, Bingzhe Wang, Tanghao Liu, Dongyang Li, Yujie Zhang, Tianqi Zhang, Xiyu Yao, Yun Wang, Abbas Amini, Yongqing Cai, Baomin Xu, Zikang Tang, Guichuan Xing*, **Chun Cheng*,** Stabilization of α-phase $FAPbI_3$ via buffering interfacial region for efficient p–i–n perovskite solar cells, **Advanced Functional Materials**, 2023, 33, 2302375.

188 Dongyang Li, Yulan Huang, Ruijie Ma*, Heng Liu, Qiong Liang, Yu Han, Zhiwei Ren, Kuan Liu, Patrick Wai-Keung Fong, Zhuoqiong Zhang, Qing Lian, Xinhui Lu, **Chun Cheng***, Gang Li*, Surface regulation with polymerized small molecular acceptor towards efficient inverted perovskite solar cells, **Advanced Energy Materials,** 2023, 13, 2204247.

187 Run Shi, Yonghuang Wu, Zeqin Xin, Jing Guo, Zonglin Li, Bochen Zhao, Ruixuan Peng, Chenyu Li, Enze Wang, Bolun Wang, Xiaolong Zhang, **Chun Cheng***, and Kai Liu*, Liquid precursor-guided phase engineering of single-crystal VO_2 beams, **Angewandte Chemie – International Edition**, 2023, 62, e202301421.

186 Lei Xu, Qicheng Zhang, Shuzhang Niu*, Xin Wang, Qing Lian, Yulan Huang, Run Shi, Abbas Amini, **Chun Cheng*,** Organic eutectic mixture incorporated with graphene oxide sheets as lithiophilic artificial protective layer for dendrite-free lithium metal batteries, **Advanced Energy Materials,** 2023, 13, 2204214.

185 Yuhang Cai, Liang Zhang, Yi He, Wenjing She, Wenfeng Cai, Yanhao Wang, Yichen Gan, Yanjun Liu, **Chun Cheng,** Jinying Zhang*, Sunmi Shin*, Liang Guo*, Violet phosphorus with high-index and low-loss: a promising candidate for nanophotonics applications, **Applied Physics Letters,** 2023, 123, 023102.

184 Dongyang Li#, Yulan Huang#, Zhiwei Ren, Abbas Amini, **Chun Cheng***, Gang Li*, Recent progress of inverted organic-inorganic halide perovskite solar cells, **Journal of Energy Chemistry**, 2023, 79, 168.

183 Xian Zhang, Mengtian Jin, Feifei Jia, Jiaqi Huang, Abbas Amini, Shaoxian Song, Hao Yi*, **Chun Cheng***, Noble-metal-free OER electrocatalysts working at high current densities over 1000 mA cm^{-2}: From fundamental understanding to design principles, **Energy & Environmental Materials**, 2023, 6, e12457.

182 Qun Wang, Shi Wang, Jingyi Li, Yichen Gan, Mengtian Jin, Run Shi, Abbas Amini, Ning Wang, **Chun Cheng***, Modified spatially confined strategy enabled mild growth kinetics for facile growth management of atomically-thin tungsten disulfides, **Advanced Science**, 2022, 10, 2205638.

181 Weien Lai*, Qing Zhu, Gen Liu, Guanghua Shi, Yichen Gan, Abbas Amini, **Chun Cheng***, Broadband and large-depth terahertz modulation by self-assembly monolayer silver nanoparticle arrays, **Journal of Physics D: Applied Physics**, 2022, 55, 505103.

180 Guoliang Wang, Qing Lian, Deng Wang, Feng Jiang, Guojun Mi, Dongyang Li, Yulan Huang, Yun Wang, Xiyu Yao, Run Shi, Chwenhaw Liao, Jianghui Zheng, Anita Ho-Baillie, Abbas Amini, Baomin Xu, **Chun Cheng***, Thermal radiation driven ultrafast crystallization of perovskite films under heavy humidity for efficient inverted solar cells, **Advanced Materials**, 2022, 34, 2205143.

179 Mengtian Jin, Xian Zhang, Shuzhang Niu, Qun Wang, Runqing Huang, Ruihua Ling, Jiaqi Huang, Run Shi, Amini Abbas, **Chun Cheng***, Strategies for designing high-performance HER electrocatalysts at large current densities above 1000 mA cm^{-2}, **ACS Nano**, 2022, 16, 11577.

178 Xian Zhang, Hao Yi, Mengtian Jin, Qing Lian, Yu Huang, Zhong Ai, Runqing Huang, Ziteng Zuo, Chunmei Tang, Abbas Amini, Feifei Jia*, Shaoxian Song, **Chun Cheng***, In situ reconstructed Zn doped (Ni, Fe)OOH catalyst for efficient and ultrastable oxygen evolution reaction at high current densities, **Small**, 2022,18, 2203710.

177 Ouwen Peng, Qikun Hu, Xin Zhou, Rongrong Zhang, Yonghua Du, Minzhang Li, Lu Ma, Shibo Xi, Wei Fu, Zongxiang Xu, **Chun Cheng***, Zhongxin Chen*, Kian Ping Loh*, Swinging hydrogen

evolution to nitrate reduction activity in molybdenum carbide by ruthenium doping, **ACS Catalysis**, 2022, 12, 15045.

176 Zhuoqiong Zhang, Yabing Tang, Yunfan Wang, Zixin Zeng, Run Shi, Han Yan, Sai Wing Tsang, **Chun Cheng***, Shu Kong So*, Heat transfer enhancement of n-type organic semiconductors by an insulator blend approach, **ACS Applied Materials & Interfaces**, 2022, 14, 30174.

175 Abbas Amini *, Narjes Firouzkouhi, Ahmad Gholami, Anju R. Gupta, **Chun Cheng**, Bijan Davvaz, Soft hypergraph for modeling global interactions via social media networks, **Expert Systems with Applications**, 2022, 203, 117466.

174 Yongheng Zhou, Kaiyue He, Huamin Hu, Gang Ouyang, Chao Zhu, Wei Wang, Sichen Qin, Ye Tao, Runfeng Chen, Le Zhang, Run Shi, **Chun Cheng**, Han Wang, Yanjun Liu, Zheng Liu, Taihong Wang, Wei Huang*, Lin Wang*, Xiaolong Chen*, Strong neel ordering and luminescence correlation in a two-dimensional antiferromagnet, **Laser & Photonics Reviews**, 2022, 16, 2100431.

173 Yulan Huang, Tanghao Liu, Dongyang Li, Qing Lian, Yun Wang, Guoliang Wang, Guojun Mi, Yuanyuan Zhou, Amini Abbas, Baomin Xu, Zikang Tang, **Chun Cheng***, Guichuan Xing*, Bridging the interfacial contact for improved stability and efficiency of inverted perovskite solar cells, **Small**, 2022, 18, 2201694.

172 Jiawen Wu, Yaru Li, Yong Zhang, Yan Li, Yulan Huang, Zhengyan Jiang, Qian Ai, Yanliang Liu, Luozheng Zhang, Yuanjun Peng, Xingzhu Wang*, Baomin Xu*, **Chun Cheng***, Highly orientational order perovskite induced by in situ-generated 1D perovskite for efficient and stable printable photovoltaics, **Small**, 2022, 18, 2200130.

171 Azad Hajar, Mohsennia Mohsen*, **Chun Cheng**, Amini Abbas*, Cross-linked poly(vinyl butyral)/ amine-functionalized polyacrylonitrile adsorptive membrane nano-composited with CeO_2 nanoparticles for simultaneous aqueous removal of heavy metals and cefotaxime, **Chemical Engineering Journal**, 2022, 435, 134849.

170 Qing Lian, Penglai Wang, Guoliang Wang, Xian Zhang, Yulan Huang, Dongyang Li, Guojun Mi, Run Shi, Abbas Amini, Liang Zhang*, and **Chun Cheng***, Doping free and amorphous NiO_x film via UV irradiation for efficient inverted perovskite solar cells, **Advanced Science**, 2022, 9, 2201543.

169 Xiangbin Cai, Zefei Wu, Xu Han, Yong Chen, Shuigang Xu, Jiangxiazi Lin, Tianyi Han, Pingge He, Xuemeng Feng, Liheng An, Run Shi, Jingwei Wang, Zhehan Ying, Yuan Cai, Mengyuan Hua, Junwei Liu, Ding Pan, **Chun Cheng,** Ning Wang*, Bridging the gap between atomically thin semiconductors and metal leads, **Nature Communications**, 2022, 13, 1777.

168 Zhuoqiong Zhang, Run Shi, Abbas Amini, Shu Kong So*, **Chun Cheng***, Organic semiconductor-insulator blends for organic field-effect transistors, **Physica Status Solidi-Rapid Research Letters**, 2022, 16, 2100602.

167 Shuzhang Niu, Siwei Zhang, Donyang Li, Xin Wang, Xiaomei Chen, Run Shi, Nan Shen, Mengtian Jin, Xian Zhang, Qing Lian, Runqing Huang, Abbas Amini, Yusheng Zhao, **Chun Cheng***, Sandwiched Li plating between lithiophilic-lithiophobic gradient silver@ fullerene interphase layer for ultrastable lithium metal anodes, **Chemical Engineering Journal**, 2022, 429, 132156.

166 Narjes Firouzkouhi, Abbas Amini, **Chun Cheng**, Ali Zarrabi, Bijan Davvaz, Intuitionistic fuzzy set of Γ-submodules and its application in modeling spread of viral diseases, mutated covid-n, via flights, **International Journal of Intelligent Systems**, 2022, 37, 5134.

165 Xian Zhang, Mengtian Jin, Qing Lian, Ouwen Peng, Shuzhang Niu, Zhong Ai, Abbas Amini, Shaoxian Song*, **Chun Cheng***, Ion modification of transition cobalt oxide by soaking strategy for enhanced water splitting, **Chemical Engineering Journal**, 2021, 423, 130218.

164 Zhuoqiong Zhang#, Johnny Ka Wai Ho#, Chujun Zhang, Hang Yin, Zhenchuan Wen, Guilong Cai, Ruyan Zhao, Run Shi, Xinhui Lu, Jun Liu, Xiaotao Hao, **Chun Cheng***, Shu Kong So*, Boosting charge and thermal transport-role of insulators in stable and efficient n-type polymer transistors, **Journal of Materials Chemistry C**, 2021, 9, 12281.

163 Xin Wang#, Runqing Huang#, Shuzhang Niu*, Lei Xu, Qicheng Zhang, Abbas Amini, **Chun Cheng*,** Research progress on graphene-based materials for high-performance lithium-metal batteries, **New Carbon Materials**, 2021, 36, 711.

162 Jingwei Wang#, Mengjiao Han#, Qun Wang, Yaqiang Ji, Xian Zhang, Run Shi, Zefei Wu, Liang Zhang, Abbas Amini, Liang Guo, Ning Wang, Junhao Lin, **Chun Cheng***, Strained epitaxy of monolayer transition metal dichalcogenides for wrinkle arrays, **ACS Nano**, 2021, 15, 6633.

161 Qun Wang, Run Shi, Yaxuan Zhao, Runqing Huang, Zixu Wang, Abbas Amini, **Chun Cheng***, Recent progress on kinetic control of chemical vapor deposition growth of high-quality wafer-scale transition metal dichalcogenides, **Nanoscale Advances**, 2021, 3, 3430.

160 Chunmei Tang*, Shouzheng Wang, Kaixiao Zhang, **Chun Cheng***, Remarkable-cycling-performance anode for li-ion battery: the bilayer β-bismuthene, **Electrochimica Acta**, 2021, 388, 138641.

159 Run Shi, Yong Chen, Xiangbin Cai, Qing Lian, Zhuoqiong Zhang, Nan Shen, Abbas Amini, Ning Wang, **Chun Cheng***, Phase management in single-crystalline vanadium dioxide beams, **Nature Communications**, 2021, 12, 1.

158 Nan Shen, Shi Chen, Run Shi, Shuzhang Niu, Abbas Amini, **Chun Cheng***, Phase transition hysteresis of tungsten doped VO_2 synergistically boosts the function of smart windows in ambient conditions, **ACS Applied Electronic Materials**, 2021, 3, 3648.

157 Nan Shen, Shi Chen, Runqing Huang, Jiaqi Huang, Jingyi Li, Run Shi, Shuzhang Niu, Abbas Amini, **Chun Cheng***, Vanadium dioxide for thermochromic smart windows in ambient conditions, **Materials Today Energy**, 2021, 21, 100827.

156 Marziyeh Nazari, Abbas Amini*, Nathan T Eden, Mikel C Duke, **Chun Cheng**, Matthew R Hill, Highly-efficient sulfonated Uio-66 (Zr) optical fiber for rapid detection of trace levels of Pb^{2+}, **International Journal of Molecular Sciences**, 2021, 22, 6053.

155 Puttaswamy Madhusudan#, Run Shi#, Shengling Xiang, Mengtian Jin, Bananakere Nanjegowda Chandrashekar, Jingwei Wang, Weijun Wang, Ouwen Peng, Abbas Amini, **Chun Cheng***, Construction of highly efficient Z-scheme $Zn_xCd_{1-x}S$/Au@G-C_3N_4 ternary heterojunction composite for visible-light-driven photocatalytic reduction of CO_2 to solar fuel, **Applied Catalysis B: Environmental**, 2021, 282, 119600.

154 Abbas Amini*, Azadeh Fallah, Ahmad Sedaghat, Ahmad Gholami, **Chun Cheng**, Anju R Gupta, Natural vs. Synthetic phosphate as efficient heterogeneous compounds for synthesis of quinoxalines, **International Journal of Molecular Sciences**, 2021, 22, 13665.

153 Hongyu Li, Jianbo Zhu, Jing Lin*, Qun Wang, Chao Yu, Yi Fang, Zhenya Liu, Zhonglu Guo, Yanming Xue, Chengchun Tang, **Chun Cheng**, Yang Huang*, Synthesis of nanostructured boron nitride aerogels by rapid pyrolysis of melamine diborate aerogels via induction heating: From composition adjustment to property studies, **ACS Applied Nano Materials**, 2021, 4, 13788.

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Conference Papers:

3. Kumar Santosh, Kumar M. Vinay, Pattabi Manjunatha, K. Asokan, Xavier, Nini, Martin, B. N. Chandrashekar, **Chun Cheng**, S Krishnaveni, Effect of Gamma Irradiation on Electrical Properties of CdTe/CdS Solar Cells. **Materials Today: Proceedings**, 2018, 5, 22570
2. Tailun Wong, Guangwei She, **Chun Cheng**, Wei Li, Wensheng Shi, Xiaohong Zhang, Ning Wang*, Fabrication and structure characterization of Te butterfly nanostructures. **INEC 2010 3rd International Nanoelectronics Conference: Proceedings**, 2010, 107-108
1. **Chun Cheng**, Ning Wang*, Synthesis, characterization and growth mechanism of ZnO/TiO_2 nanohybrid arrays, **Materials Research Society (MRS): Proceedings**, 2008, 40-45

Book Chapter:

1. B. N. Chandrashekar, A. S. Smitha, K. Jagadish, Namratha, S. Srikantaswamy, B. E. Swamy Kumara, K. K. Sadasivuni, D. Ponnamma, K. Byrappa*, **Chun Cheng***, Chapter: Functional Nano-Materials for Transparent Electrodes in Book "*Smart Polymer Nanocomposites-Energy harvesting, Self-healing and Shape memory*" Publisher- **Springer** Expecting to publish within 45 days.

Education Papers:

3. **Chun Cheng**, Bianxia Sun, Research and practice of open research-based teaching mode in undergraduate innovative talents training in southern university of science and technology [J], **Contemporary Educational Practice and Teaching Research**, 2018/08, 109-111, ISSN2095-6711/Z01-2017-08-0109

2. **Chun Cheng**, Bianxia Sun, SUSTech 631 enrollment mode and selection of innovative talents [J], **Educational modernization**, 2018, 5(03):26-27, DOI: 10.16541/j.cnki.2095-8420.2018.02.012; This paper won the "First Prize" of the 4th Excellent Paper on Education and Research, Certificate No.: ISSN2095-8420/CN 11-9354/G4
1. **Chun Cheng**, Bianxia Sun, The inspiration on the massive innovation talent training of the SUSTech from the miniature elite education of the national base class, 2016 International Conference on Education, **Training and Management Innovation** (ETMI2016), 351-355

Patents Applied/Granted

I have applied more than 20 Chinese/PCT Patents. 8 of them have been granted. The granted patents are listed below:

1. Chun Cheng, Qing Lian, "A polyoxide and its preparation method and application", Patent No. ZL202110220543.4, License Date: Nov. 14, 2023
2. Chun Cheng, Run Shi, Yong Chen, Nan Shen, Weiguang Kong, Yicchen Gan, Zixu Wang, Yaxuan Zhao, "A Vanadium oxide single crystal driver and its preparation method and application" patent No. ZL202110181070.1, License date: Oct. 17, 2023
3. Chun Cheng, Shuzhang Niu, Run Shi, Runqing Huang, "A graphitized carbon foam supported carbon material/Molybdenum carbide composite material and its preparation method and application", Patent No. ZL201911105531.6, License Date: May 05, 2023
4. Chun Cheng, Run Shi, Yong Chen, Nan Shen, Weiguang Kong, Yaxuan Zhao, Zixu Wang, Yichen Gan, "A vanadium dioxide single crystal micro-nano wire and its preparation method and application", Patent No. ZL202110178476.4, License Date: Apr. 05, 2022
5. Chun Cheng, Linfei Zhang, Shengliang Zhang, "V2O5-C-SnO2 hybrid nanoribbons as anode material for lithium-ion batteries and a preparation method thereof", Patent No. ZL201580085684.2, License Date: Apr. 30, 2021
6. Chun Cheng, Weijun Wang, Jingwei Wang, Run Shi, Yang Fu, Guoliang Wang, Haichao Zhang, Pai Geng, Nianduo Cai, Pengcheng Chen, Dejun Kong, "Large-size single-layer hexagonal boron nitride single crystal or film and preparation method", Patent No. ZL201810474244.1, License Date: Nov. 24, 2020
7. Baomin Xu, Jinbo Wu, Run Shi, Chun Cheng, "Silicon-containing composite negative electrode material for lithium-ion batteries, preparation method and battery containing it", Patent No. ZL201610966494.8, License Date: Apr. 02, 2019
8. Chengchun Tang, Chun Cheng, Xiaoxia Ding, Shouren Qi, "Synthesis of micron and nano zinc oxide fibers by controlled evaporation of alloy gas", Patent No. ZL200410013391.7, License Date: June 21, 2006

Presentations

Invited Presentations at Professional Meetings, Conferences, Universities and Industries, etc.

- Invited talk, NSFC "Basic Research on High-performance Materials of Functional Primitive Structure" Research Program Annual Exchange Meeting, Qinzhou, China, March. 21-24, 2023
- Invited talk, 2023 International Conference on Advanced Semiconductors and Displays (ICASD 2023), Shenzhen, China, July 14-17, 2023
- Invited talk, China Materials Conference 2022-2023, Shenzhen, July 7-10, 2023

- Invited talk, Photovoltaic Forum of First China “Double Carbon” Conference, Jinan, May 27-28, 2023
- Invited talk, National Forum on Teaching Reform and Innovation of Enabling New Technology in Higher Education and Teaching, Shenzhen, China, July 20-22, 2022
- Invited talk (Online), Multi-phase Flow Academic Conference of China Engineering Thermophysics Society, Zhuhai, China, Oct. 16-20, 2022
- Invited talk (online), Xiamen University, Xiamen, China, July 22, 2022
- Invited talk (online), Research Cloud, China, Apr. 7, 2022
- Invited talk, NSFC "Basic Research on High-performance Materials of Functional Primitive Structure" Research Program Annual Exchange Meeting, Hangzhou, China, Oct. 14-16, 2021
- Invited talk, International Industry-University-research Cooperation Conference on the Maritime Silk Road, Shenzhen, China, Nov. 30, 2021
- Keynote talk (online), Webinar on Materials Science, Engineering and Technology, VEBLEO，Oct. 27-30, 2021
- Invited talk, Harbin Institute of Technology (Shenzhen), Shenzhen, China, Dec. 8, 2020
- Invited talk, First Vanadium Oxide and Smart Glass Forum, Jinan, China, Apr. 26-28, 2019
- Invited talk, Third National Symposium on Solar Energy Materials and Solar Cells, Shenzhen, China, Jun. 14-16, 2019
- Invited talk, Shenzhen Graduate School of Peking University, Shenzhen, China, Oct. 30, 2019
- Invited talk, Fifth International Conference on 2D Materials and Technology (ICON-2DMAT), Suzhou, China, Oct. 21-24, 2019
- Invited talk, International Symposium Low Dimensional Materials for Optoelectronics (LDMO), Shenzhen, China, 25-27, 2018
- Invited talk, Hong Kong Baptist University, Hongkong, China, Sept. 17, 2018
- Invited talk, Ninth International Conference on Technological Advances of Thin Films & Surface Coatings, Shenzhen, China, July 17-20, 2018
- Invited talk, New Materials Industry Technology Exchange Matchmaking Conference, Supported by SUSTech and New Materials Online, Shenzhen, China, July 28, 2018
- Invited talk, Shenzhen University, Shenzhen, China, Oct. 23, 2018
- Oral presentation, Materials Research Society Fall Meeting (MRS), Boston, USA, Nov. 26- Dec. 1, 2017
- Oral presentation, Materials Research Society Spring Meeting (MRS), Phoenix, USA, Mar. 27 – Apr. 1, 2016
- Invited talk, Aseanian Conference on Nano-Hybrid Solar Cells (ACNSC), Beijing, China, Sept. 20-24, 2016,
- Invited talk, "Heat and Mass Transfer Sub-Committee" of Chinese Society of Engineering Thermophysics and "NSFC Heat and Mass Transfer Research Progress Exchange Meeting”, Beijing, China, Oct. 21-23, 2016
- Invited talk, 9th Singapore International Chemistry Conference, Singapore, Dec. 11-14, 2016
- Oral presentation, Materials Research Society Spring Meeting (MRS), San Francisco, USA, Apr. 9-13, 2015
- Invited talk, EMN/Optoelectronics Meeting, Beijing, China, Apr. 24-27, 2015
- Oral presentation, Materials Research Society Spring Meeting (MRS), San Francisco, USA, Apr. 9-13 2012

- Invited talk, IEEE International Nano Electronics Conference, Hongkong, China, Jan. 3-8, 2010
- Invited talk, National Optoelectronic Laboratory of Wuhan & Huazhong University of Science and Technology, Wuhan, China, Dec. 31, 2010
- Oral presentation, Materials Research Society Fall Meeting (MRS), San Francisco, USA, Nov. 26-30, 2007

TEACHING AND CURRICULUM DEVELOPMENT

Teaching courses at *Southern University of Science and Technology*

- 2013 Fall, Introduction to Nano-devices
- 2014 Fall, Crystallography
- 2015 Spring, Nanomaterials |Materials testing and analysis technology
- 2015 Fall, Advanced material characterization technology| Crystallography
- 2016 Spring, Nanomaterials |Materials testing and analysis technology
- 2016 Fall, Crystallography
- 2017 Spring, Nanomaterials |Materials testing and analysis technology
- 2017-2019, 2020 - 2023 Fall, Crystallography
- 2018,2019, 2020 - 2023 Spring, Nanomaterials

Curriculum Development

New courses developed at Southern University of Science and Technology

- Introduction to Nano-devices, optional course for undergraduate students, Fall semester 2013
- Materials Testing and Characterization Technology, compulsory course for undergraduate students, Spring semester 2013-2017
- Nanomaterials (Theory and Experiment), optional course for undergraduate students, Spring semester 2013-2016
- Crystallography, professional basic compulsory course for undergraduate students, Fall semester 2014-till now
- Nanomaterials (Theory), optional course for graduate students, Spring semester 2017-till now

Collaborative Efforts and Activities

- I have undertaken 10 teaching reform projects and chaired 4 of them, including 1 provincial project and 3 school level projects. 1 project is ongoing (2023.10-2025.09)
- I have published three papers on teaching reform.

Undergraduate Student Activities

- I served as life mentor to guide 29 undergraduate students and now I am supervising 9 students.
- I served as research mentor to guide 27 undergraduate students. 24/27 went on to pursue doctoral degrees. They received PhD offers from the renowned universities (e.g., Oxford, Purdue, Dartmouth, UIUC, Cornell, UT-Austin, UCSB, UCSD, UCLA, CMU, NTU and HKUST etc.). In addition, 4/27 were awarded National Scholarship. 5 were awarded “Top 10

graduates(十佳毕业生)" of SUSTech(and 1 candidate).

- I am supervising 10 undergraduate students, who work with me in my AMRAL lab.

Graduate Student Activities

Postgraduate Students Activities

- I have supervised 9 postgraduate students. 6/9 went on to pursue doctoral degrees. One student was awarded National Scholarship.
- I am supervising 8 postgraduate students.

Doctoral Students Activities

- I have directed 5 PhD thesis. 5/5 go on postdoc studies. 2/5 were awarded "Outstanding PhD Graduates" of SUSTech.
- Doctoral Dissertations Directed：
  a) "Controlled Growth and Properties Modulation of Two-Dimensional Transition Metal Dichalcogenides", 2020, Jingwei Wang
  b) "Polyoxometalates and Polyoxometalate-Derived Nanoparticles Supported by Nanocarbon Materials and their Applications", 2020, Jun Miao
  c) "Controllable Growth, Phase Modulation, and Applications of Low-Dimensional Vanadium Dioxide Crystals", 2021, Run Shi
  d) "Electrical and Thermal Transport of Organic Semiconductors Blended with Insulators", 2022, Zuoqiong Zhang
  e) "Interface regulation for efficient and stable inverted perovskite solar cells", 2023, Yulan Huang
- I am supervising 7 PhD students

Post-doctoral Fellows Supervised

- I have supervised 5 post-doctoral fellows. 5/5 have found positions in universities.

Research Assistant, Senior Scientists Supervised

- I have supervised more than 20 research assistants. More than half went on to pursue doctoral degrees.
- I have supervised 7 senior scientists.

Visiting Scholars Hosted

- I have hosted more than 10 visiting Scholars, 3 from India (Visvesvaraya Technological University, Mangalore University and University of Mysore) and 7 from China (Tsinghua University, Huazhong University of Science and Technology, Hongkong University of Science and Technology, etc.)

* Most of my group members continue to purchase PhD degree and obtain faculty positions from the renowned universities such as Henan University, East China University of Science and Technology, Nanjing University of Aeronautics and Astronautics, Mysore University (India) and Hanyang University (Korea) etc.

SERVICE AND PUBLIC OUTREACH

Service to the Discipline/Profession/Interdisciplinary Areas

Editorships/Journal Reviewer Experience

- Editorial Board Member, Journal of Science: Advanced Materials and Devices (Journal), Elsevier Publishers
- Editorial Board Member, Energy & Environmental Materials (Journal), ZHENGZHOU University and Wiley Publishers
- Editorial Board Member, Materials Research and application (Journal), China
- Topic Editor, Materials (Journal), MDPI Publishers
- Referee and adjudicator of Joule for Cell Publishers
- Referee of the renowned journals such as Nature Nanotechnology, Nature Electronics and Nature Communications etc. for Nature publishers
- Referee of the renowned journals such as Advanced Materials, Advanced Energy Materials, Advanced Functional Materials, Advanced Optical Materials, Angew Chem Int Ed and Small etc. for Wiley publishers
- Referee of the renowned journals such as ACS Nano, Nano Letters, Chemistry of Materials and ACS AMI etc. for ACS publishers
- Referee of the renowned journals such as Energy Environmental Science, Journal of Materials Chemistry A, Nanoscale, Chemical Communication etc. for RSC Publishers
- Referee of the renowned journals such as Chemistry Engineering Journal, Acta Materialia, Applied Catalysis B: Environment and Energy and Nano Energy etc. for Elsevier Publishers
- Referee of doctoral thesis from the renowned Universities, such as NTU, HKU, HKUST, UMAC, Tsinghua, HUST and CCNU etc.

Review panels for external funding agencies, foundations, etc.

- Peer Referee, National Natural Science Foundation of China (国家基金委)
- Peer Referee, Ministry of Science and Technology of China (国家科技部)
- Peer Referee, National Enterprise Thousand Talents Plan, China (国家千人计划)
- Peer Referee, Department of Science and Technology of Guangdong Province, China
- Peer Referee, Department of Science and Technology of Jiangsu Province, China
- Peer Referee, Department of Science and Technology of Zhejiang Province, China
- Peer Referee, Department of Science and Technology of Fujian Province, China
- Peer Referee, Zhuhai Innovation and Technology Award, China
- Peer Referee, Shenzhen Science and Technology Innovation Commission, Shenzhen, China
- Peer Referee, Shenzhen Development and Reform Commission, Shenzhen, China
- Peer Referee, Shenzhen Expert Committee, Shenzhen, China

Organization of conferences, workshops, panels, symposia

Committee of conferences:

- Member of organizing committee, The third national symposium on solar materials and solar cells, Shenzhen, China, 2019
- Member of organizing committee, 2016 International Conference on Education, Training and Management Innovation (ETMI 2016), Shenzhen, China, 2016

Organizing mini-symposium and sessions of conferences

- Co-chairman, 2st Symposium on Vanadium Oxides and Smart Glass, Jinan, China, 2023
- Co-chairman of Nanocrystals Special Session, International Conference on Advances in Science & Engineering, ICASE – 2017, Xi'an, China

Session chairs at conferences:

- Session Chair, China Materials Conference 2022-2023, Shenzhen, China, July 7-10, 2023
- Session Chair, International Conference on Advanced Semiconductors and Displays (ICASD 2023), Shenzhen, China, July 14-17, 2023
- Session Chair, 1st Symposium on Vanadium Oxides and Smart Glass, Jinan, China, 2019
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Service to the University/Faculty/Department

University-wide service

- Board Member of Teaching Affair Committee, SUSTech
- Board Member of Alumni Association, SUSTech
- Expert Member of “Examination and Admission Research Center”, SUSTech
- Mentor of ZhiRen College of SUSTech
- Board Member of Professors Association, SUSTech, 2016-2018

Department/Unit Service

- Board Member of Undergraduate Affair Committee, MSE Dept., SUSTech
- Board Member of Postgraduate Affair Committee, MSE Dept., SUSTech
- Board Member of Awards and Judging Affair Committee, MSE Dept., SUSTech
- Member of working group on the 2020 Pandemic Preparedness, MSE Dept., SUSTech
- Member of working group on the doctoral qualification examination proposition, MSE Dept., SUSTech
- Member of working group on postgraduates' exemption, MSE Dept., SUSTech, MSE Dept., SUSTech
- Member of working group on the application of doctoral degree site application, MSE Dept., SUSTech
- Member of working group on opto-electronic information materials and devices academic site application, MSE Dept., SUSTech
- Founding faculty of MSE Dept., SUSTech

Public and Other Service

- Board member and one of the founders of Shenzhen High-level Talent Association, Convener of New Materials and New Energy Group, 2015-present
- Board member and one of the founders of Shenzhen Experts' Federation of Talents, 2016-present
- Board member of Shenzhen Youth Science and Technology Association, 2016-present