
CURRICULUM VITAE – DR SHIRLEY SHEN



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Research Credibility

Widely recognised in the Advanced Materials and Manufacturing fields.

Science Metrics (Advanced Materials and Manufacturing): updated on 12/11/2023 from Google scholar

# Publications	# citations	h-index	i10-Index
144	5542 (3827 since 2018)	38	95
	<i>The paper most cited time: 546</i>	<i>34 since 2018</i>	<i>83 since 2018</i>

See https://scholar.google.com.au/scholar?hl=en&as_sdt=0%2C5&q=shirley+shen&og=

Delivered commercial projects (around AU\$10M), as project leader or key scientist, in a broad range of industrial applications, with my scientific capabilities on structural materials and performance, functional materials, nanocomposites and coatings, interphase and surface modifications, adhesion and encapsulation, and their performance and applications as well as multi-functional nanocomposites and embedded functionality for metal 3D printing, to a wide range of industrial partners, such as Boeing (USA), Nexans Cable (France), PETRONAS (Malaysia), Laserlite (Australia) and Yiwen and AngelAlign (China), etc. I have negotiated and obtained more than AU\$5M revenues as an Engagement and business development manager in last 10 years from Australia industrial partners and oversea companies and research organisations.

Led in strategic research, particularly into new/emerging directions, and collaborations with a broad range of international research organizations and universities (a global network) for commercialisations and impacts of the science and technology research and development. A list of selected publication is attached.

Leadership and Management Experience

Group leader, Design Surfaces and Functionality Group, Advanced Materials and Processes (AMP) Program, CSIRO Manufacturing 2019 -2022, Manager, China/Asia Engagement, CSIRO Manufacturing 2011-2022, Lead, Community of Practice for China Engagement, CSIRO 2019-2022

Leading a Research Group of ~30 staff to deliver research outcomes and impact (responded to \$6M annually) in a range of domains, and the Asia Engagement strategy, initiatives and practices

- Responsible for strategy directions, new science initiatives, research leadership, daily operation and external engagements and part of the program (equivalent to DSTG MSTC) leadership team and Driving a highly collaborative agenda across CSIRO and forming deep partnership with international research organisations
- Demonstrated ability to retain and develop diverse talents in addition to attracting world-class talents: led several senior promotions, putting up models of promoting CSIRO values and actively developed young and

diverse world-class talents, developed female and young team leader and extended contract for young and diverse talents, one of them has been supported by Australia Talent Program.

- Personal leadership style: I believe a leader needs a deep sense of mission, humbleness and being sincere. The leader needs to genuinely care about people, customers and the wider stakeholders. The leader not only needs to have an inspiring “vision” , but more importantly a “credible” plan to achieve. The leader needs to be self-reflecting, having strong metacognition and a strong ability to learn from mistakes. The leader needs to have cohesion to all the staff, especially higher-level talents to achieve a greater impact. I believe my strength lies within the above qualities as demonstrated by my achievements at CSIRO.

In summary, I have led and managed wider collaborations across CSIRO and externally at various levels including researchers, leadership, Australian and international academic and industrial partners and collaborators. I have supported and led functions including Strategy, Corporate Affairs, Finance, and People, independently. I have provided high-level strategic advices and be responsible for effective and efficient oversight of the projects and collaborations, ensuring timely discussion/recommendations / decisions making on a range of problems, topics, project deliveries and program developments. I have been responsible for coordinating activities associated with oversighting and leading the collaborative program/projects.

Employment History

- **Research Group Leader** Advanced Materials and Processing (AMP), CSIRO’s Manufacturing (2019-2022)
- **Manager** of China (2011-) /**Asia (2017 -)Engagement** of CSIRO Manufacturing (2011-2022)
- Testbed Lead (Water Technology), AIM, Future Science Platform, CSIRO (10% role, 2018-2019)
- Principal Research Scientist, CSIRO Manufacturing (2016-2022)
- Research Team Leader, CSIRO Materials Science and Engineering (2007- 2014)
- Senior Research Scientist, CSIRO Materials Science and Engineering (2009-2016)
- Research Scientist, CSIRO Materials Science and Engineering (2001 – 2008)
- Research Scientist Cooperative Research Centre (CRC) for Polymers (2000-2001)

Other experience and positions (selected)

- Adjunct Professor at Swinburne University of Technology, Australia (since 2021)
- Visiting Professor at Kumamoto University, Japan (since 2019)
- Committee member of Science Council in CSIRO Manufacturing (2016-2019)
- Committee member of Diversity and Inclusion Committee in CSIRO Manufacturing (2017 -2022)
- Guest Supervisor at RMIT University (since 2020)
- Guest Supervisor at Swinburne University of technology (since 2017)
- Contact Office at Clayton in CSIRO (since 2018)
- Authorised First Aid Officer at Clayton in CSIRO (since 2015)
- Member in “Women in 3D Printing” (since 2020)
- Scientist in ‘Scientist in School’ program (since 2008)
- NATTI accredited professional Mandarin-English Interpreter: (accredited in 2002)

Education and Certificates

- PhD in Materials Engineering, Monash University, Australia (gained PhD degree in 2001), Thesis title: Nanocomposites of Polymer and Layered Silicates. Supervisors: Prof George Simon and Prof Yi-Bing Cheng
- Master in Materials Engineering, Wuhan University of Technology (WUT), P.R. China, (1987-1990), Thesis title: Study on Structure and Electric Properties of Multicrystal and Multiphase Ceramics
- Bachelor in Materials Engineering, WUT, P.R. China, (1983-1987)
- PRINCE 2 Foundation and PRINCE 2 Practitioner certificates (Dec 2021)

Selected Publication List

- Additive manufacturing of WE43 and modified AZ91D magnesium alloys using the Laser Engineered Net Shaping process, Christoph Hartmann, Kishore Venkatesan, Geoffrey de Looze, Kazuki Takashima, Shirley Shen, Robert Wilson, submitted to Additive Manufacturing, (a joint paper of DSTG, CSIRO and Kumamoto University, Japan)
- Energy absorption analysis of origami structures based on small number of samples using conditional GAN, D Zhang, AK Qin, S Shen, A Trinchi, G Lu, Thin-Walled Structures 188, 110772. 2023
- How can we provide additively manufactured parts with a fingerprint? A review of tagging strategies in additive manufacturing, A Sola, Y Sai, A Trinchi, C Chu, S Shen, S Chen, Materials 15 (1), 85, 2022
- UIT-A Universal Identifier of Things to Bridge Cyber and Physical Worlds, Y Sai, C Chu, A Trinchi, A Sola, S Shen, S Chen, IEEE International Conference on Blockchain and Cryptocurrency (ICBC), 1-3, 2022
- Biodegradable PLA-ZnO nanocomposite biomaterials with antibacterial properties, tissue engineering viability, and enhanced biocompatibility WJ Chong, S Shen, Y Li, A Trinchi, DP Simunec, IL Kyratzis, A Sola, C Wen, Smart Materials in Manufacturing, 100004, 2022
- Hazard profiling of a combinatorial library of zinc oxide nanoparticles: Ameliorating light and dark toxicity through surface passivation, S George, H Yin, Z Liu, S Shen, I Cole, CW Khiong, Journal of Hazardous Materials, 434, 128825, 2022
- Additive manufacturing of antibacterial PLA-ZnO nanocomposites: Benefits, limitations and open challenges, WJ, Chong, S Shen, Y Li, A Trinchi, D Pejak, IL Kyratzis, A Sola, C Wen, Journal of Materials Science & Technology 111, 120-151 2020 (cited 48)
- TiO₂-ZnO/Ni-5wt.% Al composite coatings on GH4169 superalloys by atmospheric plasma spray techniques and their elevated-temperature tribological behavior, P Shi, S Wan, G Yi, H Sun, Y Yu, E Xie, Q Wang, SZ Shen, N Alam, Ceramics International 46 (9), 13527-13538 2020, (cited 16)
- Carboxymethyl chitosan based nanocomposites containing chemically bonded quantum dots and magnetic nanoparticles, Y Ding, H Yin, R Chen, R Bai, C Chen, X Hao, S Shen, K Sun, F Liu, Applied Surface Science 433, 188-196, 2018
- Perovskite and organic solar cells fabricated by inkjet printing: progress and prospects, X Peng, J Yuan, S Shen, M Gao, ASR Chesman, H Yin, J Cheng, Q Zhang, etc. Advanced Functional Materials 27 (41), 1703704, 2017, (cited 168)
- Evaluation of Friction Coefficient by Ring Compression of Magnesium Alloys, LQ Ruan, A Maeda, S Ezaki, S Shen, Advanced Materials Research 1064, 9-14, 2015 (another joint paper with Kumamoto University, Japan)
- Thermoelectric fabrics: toward power generating clothing, Y Du, K Cai, S Chen, H Wang, SZ Shen, R Donelson, T Lin, Scientific reports 5 (1), 1-6, 2015, (cited 279)
- Design and construction of polymerized-chitosan coated Fe₃O₄ magnetic nanoparticles and its application for hydrophobic drug delivery, Y Ding, SZ Shen, H Sun, K Sun, F Liu, Y Qi, J Yan, Materials Science and Engineering: C 48, 487-498, 2015, (cited 203)
- Preparation and thermoelectric properties of multi-walled carbon nanotubes/polypyrrole composites, J Wang, K Cai, S Shen, J Yin, Synthetic metals 195, 132-136, 2014 (cited 127)
- Synthesis of L-glutathione-capped-ZnSe quantum dots for the sensitive and selective determination of copper ion in aqueous solutions, Y Ding, SZ Shen, H Sun, K Sun, F Liu, Sensors and Actuators B: Chemical 203, 35-43, 2014 (cited 116)
- Research progress on polymer-inorganic thermoelectric nanocomposite materials, Y Du, SZ Shen, K Cai, PS Casey, Progress in Polymer Science 37 (6), 820-841, 2012 (cited 546)
- Simultaneous increase in conductivity and Seebeck coefficient in a polyaniline/graphene nanosheets thermoelectric nanocomposite, Y Du, SZ Shen, W Yang, R Donelson, K Cai, PS Casey, Synthetic Metals 161 (23-24), 2688-2692, 2012 (cited 170)
- The effects of carbon nanotubes on mechanical and thermal properties of woven glass fibre reinforced polyamide-6 nanocomposites, Z Shen, S Bateman, DY Wu, P McMahon, M Dell'Olio, J Gotama, Composites Science and Technology 69 (2), 239-244, 2009, (cited 214)
- Comparison of solution intercalation and melt intercalation of polymer-clay nanocomposites, Z Shen, GP Simon, YB Cheng, Polymer 43 (15), 4251-4260, 2002 (cited 359)