**Dr. Deen SUN**

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**Educational Background**

**Ph. D.**, Mechanical & Material Eng., Nanyang Technological University, Singapore, 2005

**M. Eng.**, Materials Sci. & Eng., Harbin Institute of Technology, China, 2001

**B. Eng.**, Metal material and heat treatment, Northeastern University, China, 1997

**Professional History**

2014/02 to date, Chongqing University, Professor, Doctoral Supervisor, Chongqing University Hundred Talents,

2013/04-2013/12, Singapore Institute of Manufacturing Technology, Research Scientist

2009/07-2013/03，Singapore Epson Industrial Pte, Ltd, PVD department Manager

2006/08-2009/06，SuperiorCoat Pte, Ltd (Singapore), Staff Engineer

2005/04-2006/07，Nanyang Technological University, (Singapore),Research Fellow

**Membership of Professional Institutions or Societies**

1. Senior member of Chinese Vacuum Society
2. Senior member of Chinese Mechanical Engineering Society
3. Committee member of Surface Engineering Institution of Chinese Mechanical Engineering Society
4. Vice-chairman of Surface Technology and Facility Institution of Chinese Mechanical Engineering Society
5. Council member of Instrument Materials Society of China Instrument and Control Society
6. Vice-director of Surface Engineering and Technology Society, Chongqing
7. Committee member of Thin Films Society，Singapore
8. Visiting fellow of Shenzhen Institute of Advanced Technology, Chinese Academy of Sciences
9. Reviewer of 《Surface and Coatings Technology》、《Thin Solid Films》、《Journal of Materials Research》、《Diamond and Related Materials》、《Tribology- Materials, Surface, & Interface》、 and《Wear》.

**Conference and invited talks(2014-2015）**

* + The 7th international conference on technological advances of thin films & surface coatings (ThinFilms2014),Chongqing (China)，Organization committee member，July, 2014
	+ The 10th Cross-strait Seminar on Thin-Film Science and Technology, Wuhan (China),Organization committee member，Oct 2014
	+ 2014 China Functional Materials Technology and Industry Forum, Xi’an (China) Organization committee member，August, 2014
	+ The 3rd Academic Exchange Forum for Coating Preparation, Characterization and Application. Hangzhou (China)，Organization committee member，July 2015
	+ The 1st Academic Forum for Surface Technology and Facility，Shenyang (China), Organization committee member, August 2015
	+ The 8th international conference on technological advances of thin films & surface coatings (ThinFilms2016),Singapore，Organization committee member，**Symposium Chair,** July, 2016 (Confirmed) <http://54.148.138.167/2016/red/Symposia.html>

Invited talks (9 times during 2014-2015)

**Research field**

Research interests include tribological hard coatings; thin film deposition, characterization and applications; PVD and CVD technologies; Nanostructured thin films; amorphous coatings, and so on.

* + Manufacturing and remanufacturing of machine component
	+ Hard yet tough nanocomposite thin films and coatings by PVD methods including magnetron sputtering and cathodic arc
	+ DLC coatings by PECVD and FCVA
	+ Magnetron sputtering gun design, cathodic arc gun design, and anode layer ion source design
	+ Hard Anti-reflective optical coatings by magnetron sputtering
	+ Hybrid process—PVD & Plating— for decorative application, and metal shielding application, etc
	+ Other coatings, such as biological coating (HA)

# Publications

Two book chapters have been printed out.

1. Nanocomposite Thin Films and Coatings, Chapter 1, “Magnetron Sputtered Hard and Yet Tough Nanocomposite Coatings with Case Studies: Nanocrystalline TiN embedded in Amorphous SiNx”, Sam Zhang, Deen Sun and Xuan Lam Bui. Imperial College Press, 2007.
2. Nanocomposite Thin Films and Coatings, Chapter 2, “Magnetron Sputtered Hard and Yet Tough Nanocomposite Coatings with Case Studies: Nanocrystalline TiC embedded in Amorphous Carbon”, Sam Zhang, Xuan Lam Bui and Deen Sun. Imperial College Press, 2007.

Three patents (in Chinese) have been applied for.

1. CN101285172A一种旋转磁控溅射靶
2. CN101285171A 旋转圆柱磁控溅射靶
3. 201510099972.5 一种类金刚石厚膜及其制备方法及一种工件

Selected technical papers:

1. Yu Xi Wang, Sam Zhang, Jyh-Wei Lee, Wen Siang Lew, Deen Sun, Bo Li, [Toward hard yet tough CrAlSiN coatings via compositional grading](http://www.ntu.edu.sg/mae/Research/Programmes/Thinfilms/pdfpapers/compositionalgrading.pdf), Surface and Coatings Technology, 231: 346-352, 2013
2. Yu Xi Wang, Sam Zhang, Jyh-Wei Lee, Wen Siang Lew, Deen Sun, and Bo Li, [Hard Yet Tough Ceramic Coating: Not a Dream Any More-I. via Nanostructured Multilayering](http://www.ntu.edu.sg/mae/Research/Programmes/Thinfilms/pdfpapers/yuxiNNL.pdf), Nanoscience and Nanotechnology Letters, 4 (4) : 375-377, 2012
3. Yanli Cai, S. Zhang, XT.Zeng, D.E.Sun, Effect of fluorine incorporation on long term stability of magnesium containing hydroxyapatite coatings, J Mater Sci: Mater Med, 22: 1633-1638, 2011
4. Yanli Cai, S.Zhang, XT.Zeng, M.Qian, D.E.Sun, WJ.Weng，Interfacial study of magnesium-containing fluoridated hydroxyapatite coatings，Thin Solid films，519: 4529-4633，2011
5. S.Zhang, Y.S.Wang, X.T.Zeng, K.A.Khor, W.J.Weng, D.E.Sun，Evaluation of adhesion strength and toughness of fluoridated hydroxyapatite coatings，Thin solid films，516: 5162-5167，2008
6. H.L.Wang, S.Zhang, Y.B.Li, D.E.Sun, Bias effect on microstructure and mechanical properties of magnetron sputtered nanocrystalline titanium carbide thin films, Thin solid films, 516: 5419-5423, 2008
7. S.E. Ong, S.Zhang, H.J.Du, D.E.Sun，Relationship between bonding structure and mechanical properties of amorphous carbon containing silicon，Diamond and related materials，16: 1628-1635，2007
8. S.Zhang, H.L.Wang, S.E.Ong, D.E.Sun and B.X.Lam, Hard yet tough nanocomposite coatings- present status and future trend, Plasma process and polymers, 4: 219-228, 2007
9. S.Zhang, Y.S.Wang, X.T.Zeng, K.Cheng, M.Qian, D.E.Sun, W.J.Weng, W.Y.Chia，Evaluation of interfacial strength and residual stress of sol-gel derived fluoridated hydroxyapatite coatings on Ti6Al4V substrates，Engineering fracture mechanics，74: 1884-1893，2007
10. G.C.Qi, X.N.Gong, D.E.Sun, C.M.Liu，XPS analysis of chromate passive film deposited on tinplate，Journal of Northeastern University (Natural Science)，08，2006
11. S.Zhang, D.E.Sun, Y.Q.Fu, Y.T.Pei, J.Th.M.De.Hosson, Ni-Toughened nc-TiN/a-SiNx nanocomposite thin films, Surface and coatings technology, 200: 1530-1534, 2005
12. S.Zhang, D.E.Sun, Y.Q.Fu, H.J.Du, Q.Zhang，Effect of sputtering target power on preferred orientation of the nc-TiN crystallites in nanocomposite nc-TiN/a-SiNx thin films，Journal of metastalbe & nanocrystalline materials，23: 175-178，2005
13. S.Zhang, D.E.Sun, Y.Q.Fu, H.J.Du，Toughening of hard and superhard thin films: a critical review，Surface and coatings technology，198: 2-8，2005
14. S.Zhang, D.E.Sun, Y.Q.Fu, H.J.Du，Toughness measurement of thin films: a review, Surface and coatings technology, 198(1-3): 74-84, 2005
15. S.Zhang, D.E.Sun, X.T.Zeng, Oxidation of Ni-toughened nc-TiN/a-SiNx nanocomposite thin film, Journal of materials research, 20(10): 2754-2762, 2005
16. S.Zhang, D.E.Sun, Y.Q.Fu, H.J.Du. Q.Zhang, Effect of sputtering target power density on topography and residual stress during growth of nanocomposite nc-TiN/a-SiNx thin films, Diamond and related materials, 13: 1777-1784, 2004
17. S.Zhang, D.E.Sun, Y.Q.Fu, H.J.Du，Effect of sputtering target power on microstructure and mechanical properties of nanocomposite nc-TiN/a-SiNx thin films，Thin solid films，447-448: 462-467，2004
18. S.Zhang, D.E.Sun, Y.Q.Fu, H.J.Du，Toughness measurement of ceramic thin films by two-step tensile method，Thin solid films，469-470: 233-238，2004
19. S.Zhang, D.E.Sun, Y.Q.Fu, H.J.Du, Recent advances on superhard nanocomposite coatings: a review, Surface and coatings technology, 167: 113-119, 2003
20. S.Zhang. D.E.Sun, Y.Q.Fu, Superhard Nanocomposite coatings, Journal of materials science and technology, 18(6) : 485-491, 2002