

**DR. JERRY FUH, YING HSI, PE(USA), FASME, FSME  
Professor**

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**EDUCATION & EMPLOYMENT BACKGROUND**

- Ph.D. in Mechanical Engineering, University of California, Los Angeles (UCLA), 1992
- M.S. in Manufacturing Engineering, UCLA, 1985
- B.S. in Mechanical Engineering, National Chio-Tung University, Taiwan, 1980
- Professor (2008-present), Associate Professor (1999-2007). Senior Lecturer (1996-1999), Lecturer (1993-1996), NUS
- System Engineer (1992-1993), Unigraphics Solutions, Cypress, CA, USA
- Research Associate (1989-1992), UCLA, Los Angeles, USA
- Automation Engineer (1987-1988), Micropolis Corp, CA, USA
- CIM/Manufacturing Engineer (1985-1987), Menasco Aerosystem Corp, CA, USA

**PROFESSIONAL MEMBERSHIP:**

- Fellow (2009 -), Society of Manufacturing Engineers, USA
- Fellow (2008-), American Society of Mechanical Engineers, USA
- PE, Manufacturing Engineering (1989-), California Board of Professional Engineers and Land Surveyors, USA
- CMfEg, Certified Manufacturing Engineer (1987-), Society of Manufacturing Engineers, USA

**RESEARCH INTERESTS**

- 3D Printing (3DP) or Additive Manufacturing (AM) techniques
- Bio-fabrication/printing materials and processes
- Rapid prototyping and manufacturing

**SELECTIVE HONORS AND AWARDS**

- Thatcher Bros Prize, Institution of Mechanical Engineers, for the best paper published in IMechE, the Journal of Engineering Manufacture, June 2012
- 2005 IES Prestigious Engineering Achievement Award on Bio-Micro Rapid Prototyping Technologies developed, Institute of Engineers, Singapore
- Best Organiser of Symposium and Sessions (BOSS) Award from the American Society of Mechanical Engineers (ASME), Aug. 1998
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**SELECTED PUBLICATIONS**

- Sun, J, L Chang, E S Thian, J Li, J Y H Fuh, G S Hong, Y S Wong and W E J Wang, "Bio-inspired organic-inorganic composite coatings for implants via a micro-dispensing technique". Advanced Materials Research, 500 (2012): 662-672.
- Chang, L, E S Thian, J Sun, J Y H Fuh, G S Hong, Y S Wong and W E J Wang, "Fabrication of functionally-graded hydroxyapatite/titanium oxide coating via drop-on-demand technique". Nano LIFE, 2, no. 1 (Biomaterials and Tissue Engineering) (2012):12500091-12500098.
- Sun, J, R Yang, K K Tan, Y S Wong and J Y H Fuh, "Performance characterization of drop-on-demand micro-dispensing system with multi-printheads". Microsystem Technologies, 16, no. 12 (2010).
- Li, E, Q Xu, J Sun, J Y H Fuh, Y S Wong and S T Thoroddsen, "Design and Fabrication of a PET/PTFE-Based Piezoelectric Squeeze Mode". Sensors and Actuators A-Physical, 163, no. 1 (2010): 315-322
- Lu, L, J.Y.H. Fuh and Y.S. Wong, Laser-induced materials and processes for rapid prototyping. United States: Kluwer Academic Publishers, Boston, June 2001, pp.260 (ISBN: 0-7923-7400-2).

Published more than 350 technical papers in international journals and conference proceedings, 3 monographs and own 6 US/UK/EU/SGP patents.

#### **PATENTS GRANTED**

- JL Li, YL Guo, ES Thian, JYH Fu, et al. "3-Dimensional Meniscal Fibrillar Scaffolds, Apparatus and Process for the Fabrication Thereof", UK Patent Application No. 1315074.3
- Du ZM, Loh HT, Wong CY, Fuh YH, Wong YS, "Removable support for free form objects", Singapore Patent No. 120994, 29 Feb 2008
- X.H. Wang, J.Y.H. Fuh, et al., "Method and apparatus for creating a free-form three-dimensional metal part using high-temperature direct laser melting", US patent no. 6,621,039, Oct, 2003 and Singapore patent no. 98117, June 2004, European Patent EP1347853
- Y.K. Chew, J.Y.H. Fuh, et al., "Method for determining resin curing areas in an optical stereo-lithography process", US patent no. 6,652,797, Nov. 2003 and PCT application PCT/SG 99/00036
- L. Lu, J.Y.H. Fuh, GC Lim, "Method of laser casting copper-based composites" US patent no. 6,723,278, June 2004, Singapore patent no. 81940, 2003 and international application PCT/SG 99/00116 (2000)

#### **RECENT RESEARCH GRANTS**

- "Stack and Spacer Design Development for Reverse Electrodialysis", PI, EWI-GEW S\$826, June 2013-2015
- "3D Targeted Printing of Cells into Polymeric Microfiber Scaffolds for Enhanced Meniscus Reconstruction", Co-PI, S\$498K, the A\*STAR Biomedical Engineering Programme (BEP), Sept 2013-Aug 2014
- "Multi-Material Coating for Enhanced Bioactivity and Reduced Bacterial Infection", Co-PI, MOE Tier 2, S\$683,000, Jan 2014-Dec 2016
- "Fabrication of Tissue-Engineered Tendon for Enhanced Healing Capability via E-Jetting Technique", S\$346K, PSF grant, Co-PI, A\*STAR, 1 Feb 2013-Jan 2016
- "A Novel Hybrid Multi-Material Micro-Dispensing System to Develop 3-Dimensional Tissue-Engineered Meniscal Implants and Osteochondral Grafts", Co-PI, S\$496K, funded by the BEP, A\*STAR, July 2011-May 2013
- "A 3-Dimensional Micron/Nano Multiple-Materials Fabrication Platform", PI, USD\$200K, funded by the NUS Research Institute at Suzhou Industry Park and SuZhou Industry Park, China, April 2012
- "Advanced Processing for Powder Metallurgy (P/M) – High Performance and Cost Effective Materials" M3TC, PI, 2007-2009, S\$819K

(1USD\$=1.3S\$)

#### **RESEARCH STUDENTS SUPERVISED**

Supervised more than 85 postgraduate students including 35 PhD and 50 master students since 1993.

Prof Jerry Fuh has devoted himself to the research of rapid manufacturing processes RPM or 3D Printing (3DP) since 1995. Over S\$5M external and internal grants related to the RP/3DP programme were secured. As a result of his research on selective laser melting for RP/3DP, 40 international-refereed papers were published related to the RP/3DP process and 15 to RP material developments together with 4 book chapters and a book entitled "*Laser-Induced Materials and Processes for Rapid Prototyping*" published by Kluwer Academic, MA in 2001.

Furthermore, a multi-material RP system named the high-temperature laser manufacturing system (HTLMS) was patented and commercialised by a major contract manufacturer in Singapore. This novel HTLMS enables the rapid fabrication of not only metallic parts but also organic and inorganic parts, with the objective of rapidly making precision metallic components for tooling use. In 2005, together with his RP team, he received the **IES Prestigious Engineering Achievement Award** for "*Development of Rapid Prototyping Technologies for Precision and Biomedical Engineering*" from the Institute of Engineers, Singapore (IES) in recognition of outstanding engineering skills which have made notable contributions to progress in engineering in Singapore.