

W. RICHARD CHUNG

Work Phone: (408) 924-3927

Fax: (408) 924-4057

E-Mail: wchung@email.sjsu.edu

EDUCATION

Ph.D., Mechanical Engineering, Auburn University, Auburn, Alabama [August 1987]

M.S., Materials Engineering, Youngstown State University, Youngstown, Ohio [August 1984]

B.S., Chemical Engineering, Chinese Culture University, Taiwan, Republic of China. [June 1976]

SPECIAL TRAINING

Microelectronic Packaging Workshop, San Jose State University, California [July 21- 25, 1997]

Microelectronic Fabrication Workshop, San Jose State University, California [June 24 - 28, 1991]

Automatic Identification Workshop, San Jose State University, California [June 18 - 22, 1990]

WORK EXPERIENCE

Professor [Professor 8/96-present, Associate Professor 8/91-7/96, Assistant Professor:8/87-7/91]
Department of Chemical and Materials Engineering, San Jose State University, San Jose, California

- Teaching graduate and undergraduate courses, serving as thesis advisor, and advising students at San Jose State University.
- Conducting research projects in the areas of failure analyses of structural materials, semiconductor manufacturing, defect inspection and control, chip scale packaging, polymer recycling, thermoplastic composites, composite interface study, conductive polymers, and smart composite materials.
- Taught a few courses at community colleges:
 - ISO 9000 and 14000 Standards, Disk Drive Manufacturing -- Evergreen Community College
 - Manufacturing Materials and Processes -- De Anza Community College
- Member of Steering Committee for Workforce Silicon Valley
- Faculty advisor for student chapters of the SPE and SAMPE at San Jose State University.
- Executive committee member and Chairman of Education Committee, American Society of Materials -- Santa Clara Valley Chapter
- Industry consultant for Silicon Valley Engineering Council and Impact General, Inc.
- Education consultant for Disk Drive Consortium (IBM, Seagate, Komag, San Jose City College and Evergreen Community College)
- Technical book reviewer for Prentice Hall Publisher and the Society of Manufacturing Engineers
- Corporate technical instructor for IBM, Imation, and Lockheed Martin Missiles and Space Company.

Consultant: 6/99 – 12/99

Optoelectronics Division, Hewlett Packard Corporation, San Jose, California

- Worked with research and production engineers and managers to investigate the education needs and the methodology in order to transfer R&D results to production lines for LED (light emitted diodes) manufacturing engineers.

Consultant: 6/98 - 8/98

Photolithography, Thin Films, and Diffusion, D2 building, Intel Corporation, Santa Clara, California

- Conducted studies in semiconductor/wafer manufacturing yields, R&D, and training projects
- Involved in inspection and troubleshooting of semiconductor defects and process control

Visiting Scholar: 8/94 - 12/94 (recipient of sabbatical leave award from San Jose State University)

Department of Aeronautics and Astronautics, Stanford University, Stanford, California

- Worked with a research team involving with piezoelectric actuators and network algorithms to manufacture and investigate various types of smart composite materials

Research Assistant: 9/84 - 7/87

Department of Mechanical Engineering, Auburn University, Auburn, Alabama

- Design and development of polymer resins and multidirectional fiber-reinforced composites
- Material characterization and failure analysis of fibrous composites
- Development and evaluation of high impact resistant composite structures

Teaching Assistant: 9/82 - 6/84

Department of Chemical & Metallurgical Engineering, Youngstown State University, Youngstown, Ohio

- Laboratory instructor for the following courses: Physical Metallurgy (including Metallography and crystallography) and Mechanical Metallurgy (including heat treatment of metals and mechanical testing)

Plant Design Engineer: 7/80 - 2/82

Plant Design and Piping Support Division, Pacific Engineers and Constructors, Ltd. (A subsidiary of Bechtel Engineers and Constructors, Ltd.)

- Nuclear power plant design and piping layout
- Material selection for piping construction
- Destructive and nondestructive examinations for piping and piping support joints
- Field troubleshooting for design and construction discrepancies

Production Engineer: 1/78 - 6/80

Injection Molding and T-Die Extrusion Factory, Carlin Plastic Products Manufacturing Company

- Technical management of product manufacturing using extruders and injection molding machines

- Product quality control involved with statistical process control and troubleshooting
- Supervision of PVC compounding process

Chemical Engineer: 6/76 - 12/77

First Papermaking Mill, Taiwan Pulp and Paper Corp.

- R&D on waterproof kraft paper and Failure analysis of defective paper products
- Paper machine operation and technical management

RELATED SKILLS

Hands-on experience with scanning electron microscopes (models of AMRAY-1000, AMRAY-1820, ISI-40, and JOEL JEM-840), transmission electron microscopes (models of EMU-4 and JOEL-1200X), Zeiss and Leco optical microscopes, semiconductor manufacturing equipment (including spinner, photoresist developer, aligner, vacuum sputtering, chemical vacuum depositor), differential scanning calorimetry (DSC), thermogravimetric analysis (TGA), dynamic mechanical thermal analyzer (DMTA), destructive and nondestructive testing equipment (MTS, Instron, Satec universal testers, Dynatup impact tester, Charpy/Izod impact tester, ultrasonic and acoustic emission instruments)

PROFESSIONAL AFFILIATIONS

- Senior Member, Golden Gate Section, Society of Plastics Engineers (SPE)
- Past President, Chinese Quality Assurance Association (CQAA)
- Past Mechanical Engineering Group Chair, San Francisco-Bay Area Chapter, Chinese Institute of Engineers/USA (CIE/USA)
- Executive Committee Member and Chair of Education Committee of Santa Clara Chapter, American Society for Materials, International (ASM, International)
- Member of Scholarship Committee, American Society for Quality (ASQ)
- Member, Society for the Advancement of Material and Process Engineering (SAMPE)

HONORS RECEIVED

- Grant proposal reviewer for the Division of International Programs, the National Science Foundation. (1992 - 1994)
- Recipient of Sabbatical Leave Award, San Jose State University (Fall semester, 1994)
- Two-time Recipient of Meritorious Performance and Professional Promise Award, San Jose State University (AY 1989-90, 1988-89)
- First Place Winner in Materials Application, 1988 National Student-Instructor Project Competition, Sponsored by Industrial Education, Southfield, Michigan. (November 1988)

EDITING PUBLICATION

Editor, Chapter 8 (Thermoforming), Vol.8, Plastic Part Manufacturing, Tool and Manufacturing Handbook, published by Society of Manufacturing Engineers, 1996.

PUBLICATIONS

1. W. C. Chung, "Structure and Mechanical Properties of Thermoplastic Composites" presented at Update 2000:Standard Experiments in Engineering Materials, Science and Technology, National Educators' Workshop, sponsored by Wright Patterson Air Force Base, NIST, NASA, National Composite Center, October 29 – November 1, 2000, Kettering, Ohio. (in print)
2. W. C. Chung, "New and Emerging Opportunities in Packaging Materials" presented at the 20th International Association of Packaging Research Institute Symposium, June 14-18, 2000, San Jose, California. (pp. 352 – 356)
3. W.C.Chung and G.C. Erickson, "Characterization of Effectiveness of Non-destructive Inspection Methods in Detecting Defects in Thick Composites", presented at the Update97:Standard Experiments in Engineering Materials, Science and Technology, National Educators' Workshop, sponsored by Boeing, NSU, NASA, DoE and NIST, November 2 - 5, 1997, Seattle, Washington.
4. W.C.Chung and R.Peterson, "A New Processing Technique for Composite Tubes", presented at the 40th International SAMPE Symposium and Exhibition, May 8 -11, 1995, Anaheim, California (pp. 1274 - 1280)
5. W.C.Chung and K.M.Wilson, "Racing Hydroplane Driver's Safety Capsule: Composite Design and Evaluation", presented at the Update93:Standard Experiments in Engineering Materials, Science and Technology, National Educators' Workshop, sponsored by NSU, NASA, DoE and NIST, November 3 - 5, 1993, Hamton, Virginia.
7. W.C.Chung, K.Bean, J.Heng and H.Doan, "Hardness of Weldment of Low-Carbon Steels", presented at Update93:Standard Experiments in Engineering Materials, Science and Technology, National Educators' Workshop, sponsored by NSU, NASA, DoE and NIST, November 3 - 5, 1993, Hamton, Virginia.
8. W.C. Chung and A.H.Yuen, "Composite Disk Brakes: The Advantages and Disadvantages and Its Feasibility in a Production Car", presented at the 51st Annual Technical Conference, sponsored by SPE, May 9 -13, 1993, New Orleans, Louisiana. (pp.1508 - 1509)
9. W.C.Chung and T.W.Lee, "Modeling and Simulation of A Thermoforming Process", presented at the Advanced Materials and Processing of the First Pacific Rim International Conference, sponsored by TMS-AIME and MRS, June 23 - 27, 1992, Hangzhou, China. (pp. 357 - 363)
10. W.C.Chung and T.W.Lee, "Thermoforming Simulation of A Plastic Cup", presented at the 50th Annual Technical Conference, sponsored by SPE, May 3 - 7, 1992, Detroit, Michigan. (pp. 117 - 121)
11. W.C.Chung and M.L.Morse, "Effects of Heat Treatment on A Metal Alloy", presented at Update90:Standard Experiments in Engineering Materials, Science and Technology, National Educators' Workshop, sponsored by NSU, NASA, ASM and NIST, November 13 - 15, 1990, Gaithersburg, Maryland. (pp. 34 - 38)

12. W.C.Chung, "Mechanical Properties of Metal Fiber-Reinforced Composites", presented at the Advancements in Materials for Polymer Composites and Special Topics, Regional Technical Conference of SPE, October 16 - 18, 1990, Los Angeles, California. (pp.77 - 84)
13. W.C.Chung, "A Study of Short Metal Fiber-Reinforced Composite Materials", presented at the 1989 Fall Technical Conference, sponsored by MRS, November 27 - December 2, 1989, Boston, Massachusetts. (pp. 1037 - 1043)
14. W.C.Chung, B.Z.Jang and W.K.Shih, "Mechanical Properties of Multidirectional Fiber Composites", Journal of Reinforced Plastics and Composites, Vol. 8, No. 6, November 1989, pp. 538 - 564.
15. W.C.Chung, "The Assessment of Metal Fiber-Reinforced Composite Materials", presented at Update 89: Standard Experiments in Engineering Materials, Science and Technology, National Educators' Workshop, sponsored by NSU and NASA, October 16 -19, 1989, Norfolk, Virginia. (pp. 54 - 58)
16. W.C.Chung, B.Z.Jang, T.C.Chang, L.R.Hwang and R.C.Wilcox, "Fracture Behavior in Stitched Multidirectional Composites", Materials Science and Engineering, A112, June 1989, pp. 157 - 173.
17. B.Z. Jang, W.C. Chung, Y.K. Lieu and L.R. Hwang, "Controlled Energy Dissipation in Fibrous Composites, Part I. Controlled Delamination", Polymer Composites, April 1987, Vol. 8, No. 2, pp. 94 -102.
18. W.C.Chung, "The Growth of Materials Processing in Space Technology", presented at the 21st Annual Conference of National Association of Industrial Technology, October 13 - 15, 1988, San Jose, California. (pp. 23 - 25)
19. W.C.Chung, B.Z.Jang,L.R.Hwang and R.C.Wilcox, "A study on Multidirectional Composites", presented at the 46th Annual Technical Conference, sponsored by SPE, April 18 - 21, 1988, Atlanta, Georgia. (pp. 1630 - 1633)
20. B.Z.Jang, W.C.Chung, R.C.Wilcox and T.C.Chang, "Damage Tolerance of Multidirectional Fiber-Reinforced Composites", presented at the 33rd International SAMPE Symposium and Exhibition, March 7 - 10, 1988, Anaheim, California. (pp. 262 - 271)
21. B.Z.Jang and W.C.Chung, "Structure-Property Relationship in Three Dimensionally Reinforced Fibrous Composites", presented at the Second Annual ASM/ESD Advanced Composites Conference, November 18 - 20, 1986, Dearborn, Michigan. (pp. 183 - 191)
22. B.Z. Jang, W.C.Chung,Y.K.Lieu and L.R.Hwang, "Delamination Inhibition and Promotion in Fiber-Epoxy Composites", presented at the First International Conference on Post-Failure Analysis Techniques for Fiber-Reinforced Composites", July 1 - 3, 1985, Dayton, Ohio. (pp. 4-1 to 4-29)

CURRENT INDUSTRY SPONSORED RESEARCH PROJECTS

1. Characterization and Modeling of Failure Mechanisms in Plastic Encapsulated Microcircuits, sponsored by Lockheed Martin.
2. Prediction and Verification of Ductile Crack Growth in Small Test Specimens – NASA Ames Research.