

Stanford



Stephen Tsai

Professor (Research) of Aeronautics and Astronautics, Emeritus

 Curriculum Vitae available Online

CONTACT INFORMATION

- **Administrator**

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Bio

BIO

Professor Tsai's research interest is in the development of design methodology of composite materials and structures. As an emerging technology, composite materials offer unique performances for structures that combine light weight with durability. Keys to the successful utilization of composite materials are predictability in performance and cost effective design of anisotropic, laminated structures. Current emphasis is placed on the understanding of failure modes, and computer simulation for design and cost estimation.

ACADEMIC APPOINTMENTS

- Emeritus Faculty, Acad Council, Aeronautics and Astronautics
- Member, Cardiovascular Institute

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Member, National Academy of Engineering (1995 - present)

Publications

PUBLICATIONS

- **Happy 40th anniversary** *JOURNAL OF COMPOSITE MATERIALS*
Tsai, S. W.
2008; 42 (18): 1821-1823
- **Smart cure of thick composite filament wound structures to minimize the development of residual stresses** *EUROMECH 453 Colloquium on Internal Stresses in Polymer Composite Processing and Service Life*
Lee, D. H., Kim, S. K., Lee, W. I., Ha, S. K., Tsai, S. W.
ELSEVIER SCI LTD.2006: 530-37
- **Three decades of composites activities at US Air Force Materials Laboratory** *COMPOSITES SCIENCE AND TECHNOLOGY*
Tsai, S. W.
2005; 65 (15-16): 2295-2299
- **Prediction of fatigue S-N curves of composite laminates by Super Mic-Mac** *COMPOSITES PART A-APPLIED SCIENCE AND MANUFACTURING*

- Sihn, S., Tsai, S. W.
2005; 36 (10): 1381-1388
- **Trends in the design, manufacture and evaluation of wind turbine blades** *WIND ENERGY*
Veers, P. S., Ashwill, T. D., Sutherland, H. J., Laird, D. L., Lobitz, D. W., Griffin, D. A., Mandell, J. F., Musial, W. D., Jackson, K., Zuteck, M., Miravete, A., Tsai, S. W., Richmond, et al
2003; 6 (3): 245-259
 - **Prediction of fatigue life for CFRP/metal bolted joint under temperature conditions** *JSME/ASME International Conference on Materials and Processing*
Sekine, N., Nakada, M., Miyano, Y., Kuraishi, A., Tsai, S. W.
JAPAN SOC MECHANICAL ENGINEERS.2003: 484-89
 - **Catalysis, specificity, and ACP docking site of Streptomyces coelicolor malonyl-CoA : ACP transacylase** *STRUCTURE*
Keatinge-Clay, A. T., Shelat, A. A., Savage, D. F., Tsai, S. C., Miercke, L. J., O'Connell, J. D., Khosla, C., Stroud, R. M.
2003; 11 (2): 147-154
 - **Interlocked composite grids design and manufacturing** *JOURNAL OF COMPOSITE MATERIALS*
Han, D. Y., Tsai, S. W.
2003; 37 (4): 287-316
 - **Time- and temperature-dependent failures of a metal-to-composites bonded joint with PMMA adhesive material** *JOURNAL OF COMPOSITE MATERIALS*
Sihn, S., Miyano, Y., Nakada, M., Tsai, S. W.
2003; 37 (1): 35-54
 - **Expression, site-directed mutagenesis, and steady state kinetic analysis of the terminal thioesterase domain of the methymycin/picromycin polyketide synthase** *BIOCHEMISTRY*
Lu, H. X., Tsai, S. C., Khosla, C., Cane, D. E.
2002; 41 (42): 12590-12597
 - **Insights into channel architecture and substrate specificity from crystal structures of two macrocycle-forming thioesterases of modular polyketide synthases** *BIOCHEMISTRY*
Tsai, S. C., Lu, H. X., Cane, D. E., Khosla, C., Stroud, R. M.
2002; 41 (42): 12598-12606
 - **Treatment of detrusor-sphincter dyssynergia by pudendal nerve block in patients with spinal cord injury** *ARCHIVES OF PHYSICAL MEDICINE AND REHABILITATION*
Tsai, S. J., Lew, H. L., Date, E., Bih, L. I.
2002; 83 (5): 714-717
 - **A progressive quadratic failure criterion, part B** *COMPOSITES SCIENCE AND TECHNOLOGY*
Kuraishi, A., Tsai, S. W., Liu, K. K.
2002; 62 (12-13): 1683-1695
 - **Modeling of mechanical property degradation by short-term aging at high temperatures** *COMPOSITES PART B-ENGINEERING*
Kim, J., Lee, W. I., Tsai, S. W.
2002; 33 (7): 531-543
 - **Crystal structure of the macrocycle-forming thioesterase domain of the erythromycin polyketide synthase: Versatility from a unique substrate channel** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
Tsai, S. C., Miercke, L. J., Krucinski, J., Gokhale, R., Chen, J. C., Foster, P. G., Cane, D. E., Khosla, C., Stroud, R. M.
2001; 98 (26): 14808-14813
 - **PECVD silicon carbide as a chemically resistant material for micromachined transducers** *9th International Conference on Solid-State Sensors and Actuators*
Flannery, A. F., Mourlas, N. J., Storment, C. W., Tsai, S., Tan, S. H., Heck, J., Monk, D., Kim, T., Gogoi, B., Kovacs, G. T.
ELSEVIER SCIENCE SA.1998: 48-55
 - **Practical considerations for the design of composite structures** *MECHANICS OF COMPOSITE MATERIALS AND STRUCTURES*
Manne, P. M., Tsai, S. W.
1998; 5 (3): 227-255
 - **A progressive quadratic failure criterion for a laminate** *COMPOSITES SCIENCE AND TECHNOLOGY*

- Liu, K. S., Tsai, S. W.
1998; 58 (7): 1023-1032
- **Design optimization of composite plates: Part I - Design criteria for strength, stiffness, and manufacturing complexity of composite laminates** *JOURNAL OF COMPOSITE MATERIALS*
Manne, P. M., Tsai, S. W.
1998; 32 (6): 544-571
 - **Design optimization of composite plates: Part II - Structural optimization by plydrop tapering** *JOURNAL OF COMPOSITE MATERIALS*
Manne, P. M., Tsai, S. W.
1998; 32 (6): 572-598
 - **Obituary: Late Professor Tsuyoshi Hayashi** *ADVANCED COMPOSITE MATERIALS*
Hoff, R., Springer, G. S., Tsai, S. W.
1998; 7 (3): 217-218
 - **Manufacture and design of composite grids** *MATERIALES DE CONSTRUCCION*
Tsai, S. W., Liu, K. K., Manne, P. M.
1997; 47 (247-48): 59-71
 - **Analysis and behavior of grid structures** *COMPOSITES SCIENCE AND TECHNOLOGY*
Huybrechts, S., Tsai, S. W.
1996; 56 (9): 1001-1015
 - **Analysis and optimum design of composite grid structures** *JOURNAL OF COMPOSITE MATERIALS*
Chen, H. J., Tsai, S. W.
1996; 30 (4): 503-534
 - **Three-dimensional effective moduli of symmetric laminates** *JOURNAL OF COMPOSITE MATERIALS*
Chen, H. J., Tsai, S. W.
1996; 30 (8): 906-917
 - **SCHOOLING TAIWAN WOMEN - EDUCATIONAL-ATTAINMENT IN THE MID-20TH CENTURY** *Meeting of the Research-Committee-on-Social-Stratification of the International-Sociological-Association*
Tsai, S. L., Gates, H., Chiu, H. Y.
AMER SOCIOLOGICAL ASSOC.1994: 243-63
 - **3-DIMENSIONAL EFFECTIVE MODULI OF ORTHOTROPIC AND SYMMETRICAL LAMINATES** *JOURNAL OF APPLIED MECHANICS-TRANSACTIONS OF THE ASME*
Roy, A. K., Tsai, S. W.
1992; 59 (1): 39-47