***CURRICULUM VITAE***

**Thomas W. Webb, Ph.D.**

**EDUCATION:**

**PhD Mechanical Engineering-Engineering Mechanics** (January 1993)

PhD Thesis: “On The Theory of Stick-Slip Fracture”

 **MS Engineering Mechanics** (November 1986)

 **BS Mechanical Engineering** (May 1983)

 Michigan Technological University, Houghton, MI

**PROFESSIONAL HISTORY:**

**Faculty Fellow of Practice, Engineering and Computing Department, Franciscan University of Steubenville, Steubenville, OH**

**August 2025 – present**

**Adjunct Professor, Engineering and Computing Department, Franciscan University of Steubenville, Steubenville, OH**

**August 2024 – December 2024**

Developed and taught senior technical elective, Advanced Mechanics of Materials, with an introduction to finite element methods and SolidWorks Simulation.

**Principal Engineer and Manager, Bettis Atomic Power Laboratory, West Mifflin, PA**

 **December 1999 – May 2025 (Retired)**

Nuclear fuel performance modeling for design, fracture mechanics testing of stainless steels and nickel-based alloys in high temperature, pressurized water environments, microstructure-sensitive material deformation and crack growth modeling for nuclear core and plant structural design and continued use assessments.

**Senior Metallurgical Engineer, Mobil Technology Company, Farmers Branch, TX**

 **May 1997 – November 1999**

Fracture mechanics testing in simulated oil and gas downhole production environments for evaluation of stress corrosion cracking of carbon steels, stainless steels, and nickel-based alloys for downhole completion material selection and design.

**Materials Research Engineer, Naval Research Laboratory, Washington, D.C.**

 **February 1995 – May 1997**

Fracture mechanics testing of titanium, aluminum, and high strength steels in seawater for material selection and U. S. Navy fleet support.

**NSF Post-Doctoral Research Associate, Naval Research Laboratory, Washington, D.C.**

 **February 1993 – February 1995**

Fracture mechanics testing and mechanistic modeling of stress corrosion cracking for material selection and U. S. Navy fleet support.

**Visiting Research Scholar, Naval Research Laboratory, Washington, D.C.**

 **January 1987 – August 1987, June 1988 – August 1988**

Fracture mechanics testing of high strength steels in gaseous hydrogen environments, developed and applied the optical method of caustics as a high-resolution technique for early detection of hydrogen-assisted cracking.

**Graduate Teaching/Research Assistant, Michigan Technological Univ., Houghton, MI**

 **September 1983 – November 1992**

 Thesis research and instructor for Rigid Body Statics and Strength of Materials.

**Structural Analyst (Cooperative Student), Bechtel Power Corporation, Ann Arbor, MI**

**November 1979 – February 1980, June 1980 – August 1980, March 1982 – August 1982**

Performed finite element stress analyses for piping systems for the design of a co-generation nuclear power plant in Midland, MI.

**PUBLICATIONS:**

Bryan D. Miller, John R. Brockenbrough, Fassett Hickey, Brian P. Somerday and **Thomas W. Webb**, “The Role of Hydrogen in Promoting Differences in Fatigue crack Growth Rates Observed in Type 304/304L Stainless Steel at Elevated Temperature,” International Journal of Hydrogen Energy 136 (2025) 852-863.

B.D. Miller and **T.W. Webb**, “Understanding the Effect of Crack Tip Deformation on Fatigue Crack Growth Behavior in 300-series Austenitic Stainless Steel,” International Journal of Fatigue, Vol. 125, pp. 261-270, 2019.

R.W. Kozar, A.W. Jaworski, **T.W. Webb** and R.W. Smith, “In-situ Monitored In-pile Creep Testing of Zirconium Alloys,” Journal of Nuclear Materials, Vol. 444, pp. 14-22, 2014.

**T.W. Webb** and E.C. Aifantis, “Crack Growth Resistance Curves and Stick-Slip Fracture Instabilities,” Mechanics Research Communications, Vol. 24, No. 2, pp. 123 – 130, 1997.

**T.W. Webb** and E.C. Aifantis, “Loading Rate Dependence of Stick-Slip Fracture in Polymers,” Mechanics Research Communications, Vol. 24, No. 2, pp. 115-121, 1997.

**T. W. Webb**, X. H. Zhu and E. C. Aifantis, “A Simple Method for Calculating Shear Band Angles for Pressure Sensitive Plastic Materials,” Mechanics Research Communications, Vol. 24, No. 1, pp. 69-74, 1997.

A. Kouroukafopoulos, N. K. Hatzitrifon, **T. W. Webb** and E. C. Aifantis, “Equilibrium Solute Distribution Near an Interface Crack Tip and Environment-Assisted Cracing in Bi-Materials,” Mechanics Research Communications, Vol. 23, No. 6, pp. 583-588, 1996.

S. Papargyi-Pegiou, D. Theofandis, **T. W. Webb** and E. C. Aifantis, “A Simple Approach for Modelling the Heterogeneity of Crack Tip Plastic Zones,” Mechanics Research Communications, Vol. 22, No. 3, pp. 263-269, 1995.

**T. W. Webb** and E.C. Aifantis, “Oscillatory Fracture in Polymeric Materials,” Int. J. Solids Structures, Vol. 32, No. 17/18, pp. 2725-2743, 1995.

**T.W. Webb** and D.A. Meyn, “Intermittent Environment-Assisted Crack Growth During Slow Constant Extension Rate Testing,” Fracture Mechanics 26th Volume, ASTM STP 1256, W.G. Reuter, J.H. Underwood and J.C. Newman, Jr., Eds., American Society for Testing and Materials, Philadelphia, 1995.

**T.W. Webb** and E.C. Aifantis, “Stick-Slip Instabilities in Fracture,” Computational Mechanics ’95, S.N. Atluri et al., Eds., Springer-Verlag, Berlin Heidelberg 1995, pp. 1353-1358.

**T.W. Webb**, T. Vandenbrink, E.I. Meletis, and E.C. Aifantis, “Specimen Thickness Effects on Caustics,” Scripta Metallurgica et Materiala, Vol. 26, pp. 591-596, 1992.

**T.W. Webb**, E.E. Gdoutos, and E.C. Aifantis, “Preliminary Report on 3D Effects on Caustics,” Engineering Fracture Mechanics, Vol. 35, No. 6, pp. 1121-1124, 1990.

**T.W. Webb** and E.C. Aifantis, “Stick-Slip Peeling,” ASME Winter Annual Meeting, San Francisco, CA, No. 89-WA/EEP-47, 1989.

D.A. Meyn, **T.W. Webb** and E.C. Aifantis, “Hydrogen-Assisted Cracking Studies of 4340 Steel by Using the Optical Method of Caustics,” Engineering Fracture Mechanics, Vol. 33, No. 6, 1989, pp. 913-925.

**T.W. Webb**, W.W. Predebon and E.C. Aifantis, “Dislocation Dynamics and Lamellar Termination Softening in Co-CoAl Eutectics,” Scripta Metallurgica, Vol. 22, pp. 1655-1660, 1988.

**PERSONAL:**

Born May 18, 1960, Catholic, married, two adult daughters, three grandchildren.

Interests: hunting, fishing, biking, gardening.