

Kuen Y. Lin

Professor, Department of Aeronautics and Astronautics
University of Washington, Seattle, WA

Education

Ph.D.: Massachusetts Institute of Technology, 1977
MSAA: Massachusetts Institute of Technology, 1973
BSME: National Taiwan University, 1969

Current Position

Professor: September 1991- Present
Associate Professor: September 1986- July 1991
Associate Professor (WOT): January 1984- July 1986

Research Interests

Composite Materials, Aircraft Structures, Mechanics of Solids

Honors and Awards

Distinguished Contributions to Lifelong Learning Award, University of Washington, 2014

Undergraduate Teaching of Year Award, Department of Aeronautics and Astronautics, University of Washington, June 2014

Isadore T. Davis Award nominee for Excellence in Collaboration of Engineering Education and Industry, American Society for Engineering Education (ASEE), 2012

Excellence in Engineering Education Collaboration Award, American Society for Engineering Education (ASEE), 2011

CUX Top Excellence Award on Developing UW-Boeing Aircraft Composite Certificate Program, 2007

Technical Excellence Award, National Association of Asian American Professionals, November 2005

Professor of Year Award, Department of Aeronautics and Astronautics, University of Washington, June 2001

Professor of Year Award, Department of Aeronautics and Astronautics, University of Washington, June 1998

American Institute of Aeronautics and Astronautics (AIAA) Associate Fellow, 1995

President Award, National Taiwan University, Taiwan 1969

Selected Publications

Rodriguez, P. A., Richard, L., and **Lin, K.Y.**, "Analytical Study of Delamination Arrest Features in ABAQUS FEA", Proc. of 2016 SAMPE Conference, Long Beach, CA, May 23-26, 2016.

Lin, K.Y., and Richard, L., "Analytical and Experimental Studies on Delamination Arrest in Bolted- Bonded Composite Structures," Proc. of 2016 AIAA SciTech Forum, San Diego, CA, January 4-8, 2016.

Richard, L., and **Lin, K.Y.**, "Delamination Propagation under Fatigue loading in Bonded-Bolted Composite Structures," Proc. of 20th International Conference on Composite Materials (ICCM20), Copenhagen, Denmark, July 19-24, 2015.

Lin, K.Y., and Richard, L., "Analytical and Experimental Studies on Delamination Arrest Features in Aircraft Composite Structures," Proc. of 2015 AIAA SciTech Forum, Kissimmee, FL, January 5-9, 2015.

Richard, L., Liu, W., and **Lin, K.Y.**, "Delamination Arrest by Multiple Fasteners in Bonded Composite Structures," SciTech 2014, American Institute of Aeronautics and Astronautics, MD, Jan. 13-17, 2014.

Lin, K.Y., Richard, L., and Liu, W., "Delamination Arrest Fastener in Aircraft Composite Structures," Proc. of 19th International Conf. on Composite Materials (ICCM19), Montreal, Canada, July 28- Aug 2, 2013.

Cheung, C.H., Gray, P.G., and **Lin, K.Y.**, "Design and Optimization of an Axial Mode II Crack Arrest Specimen," Proc. of 53rd AIAA/ASME/ASCE/ AHS/ASC Structures,

Structural Dynamics, and Materials Conference, Honolulu, Hawaii, April 23-26, 2012.

Bruun, E.D., Cheung C.H., Gray, P.M., and **Lin, K.Y.**, "Design and Experimental Validation of a Mixed-Mode Crack Arrest Specimen," Proc. of 53rd AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conf., Honolulu, Hawaii, April 23-26, 2012.

Cheung, C.H., and **Lin, K.Y.**, "Numerical Analysis of Fastener Delamination/Disbond Arrest Mechanism in Aircraft Composite Structures," *Journal of Aircraft*, Vol. 49, March 2012.

O'Mahony, T.K., Vye, N.J., Bransford, J.D., Sanders, E.A., Stevens, R., Stephens, R.D., Richey, M.C., **Lin, K.Y.**, and Soleiman, M.K., "A Comparison of Lecture-Based and Challenge-Based Learning in a Workplace Setting: Course Designs, Patterns of Interactivity, and Learning Outcomes," *The Journal of the Learning Sciences*, 21: pp. 182-206, 2012.

Cheung, C.H., Gray, P.G., and **Lin, K.Y.**, "Fastener as Fail-Safe Disbond/Delamination Arrest for Laminated Composite Structures," Proc. of 18th Inter. Conf. on Composite Materials (ICCM18), Jeju Island, Korea, Aug. 21-26, 2011.

Gray, P.G., Cheung, C.H., and **Lin, K.Y.**, "Design Tool for Laminated Composite Structures Disbond Arrest Mechanism," SAMPE 2010, Seattle, May 17-20, 2010.

Cheung, C.H., Gray, P.G., and **Lin, K.Y.**, "Analysis of Fasteners as Disbond Arrest Mechanism for Laminated Composite Structures," Proc. of 51st AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference, Orlando, FL, April 12-15, 2010.

Cheung, C.H., and **Lin, K.Y.**, "Reliability of Damage Tolerance Composite Structure Using Fasteners as Disbond Arrest Mechanism," Proc. of 50th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference, Palm Springs, CA, May 4-7, 2009.

Tajima, S., and **Lin, K.Y.**, "Characterization of Aging Effects in Polymeric Composites Using X-ray Photoelectron Spectroscopy," Proc. of 3rd International Symposium on Advanced Fluid/Solid Science and Technology in Experimental Mechanics, Dec. 7-10, 2008, Tainan, Taiwan (keynote paper).

Styuart, A., **Lin, K.Y.**, and Livne, E., "Probabilistic Modeling of Structural/Aeroelastic Life Cycle for Reliability Evaluation of Damage Tolerant Composite Structures," Proc. of Inter. Council of the Aeronautical Sciences (ICAS) 2008 Congress, Anchorage, Alaska, Sept. 14-19, 2008.

Styuart, A., Demasi, L., Livne, E., and **Lin, K.Y.**, "Probabilistic Modeling of Aeroelastic Life Cycle for Risk Evaluation of Composite Structures," Proc. of 10th AIAA Non-Deterministic Approaches Conf., Schaumburg, Illinois, April 7-10, 2008.

Styuart, A., Cheung, C.H., and **Lin, K.Y.**, "Reliability-based Evaluation of the Damage Growth in Composite Structures," Proceedings of the 10th AIAA Non-Deterministic Approaches Conference, Schaumburg, Illinois, April 7-10, 2008.

Styuart, A., and **Lin, K.Y.**, "Selection of Certification Tests for Composite Structures Using Optimal Statistical Decision," Proc. of the 10th AIAA Non-Deterministic Approaches Conference, Schaumburg, Illinois, April 7-10, 2008.

Cheung, C.H., Styuart, A., and **Lin, K.Y.**, "Reliability of Composite Structures with Damage Growth Consideration" Proc. of the American Society for Composites 22nd Annual Technical Conference, Seattle, WA, Sept. 17-20, 2007.

Lin, K.Y., and Styuart, A., "Probabilistic Approach to Damage Tolerant Design of Aircraft Composite Structures," *Journal of Aircraft*, Volume 44, No. 4, July 2007.

Styuart, A., Mor, M., Livne, E., and **Lin, K.Y.**, "Risk Assessment of Aeroelastic Failure Phenomena in Damage Tolerant Composite Structures," Proc. of the 9th AIAA Non-Deterministic Approaches Conference, Hawaii, April 23-26, 2007.

Richey, M, **Lin, K.Y.**, and Mohaghegh, M., "A Blended Academia-Industry Learning Model for Aircraft Composite Structures Education," Proc. of the 48th AIAA Structures, Structural Dynamics, and Materials Conference, Hawaii, April 23-26, 2007.

Styuart, A, and **Lin, K.Y.**, "Maintenance Planning for Aircraft Damage Tolerant Composite Structures based on Risk Assessment," Proc. of the 9th AIAA Non-Deterministic Approaches Conference, Hawaii, April 23-26, 2007.

Lin, K.Y., and Styuart, A., "A Probabilistic Approach to Damage Tolerance Design of Aircraft Composite Structures," Proc. of the 47th AIAA Structures, Structural Dynamics, & Materials Conference, Newport, RI, May 1-4, 2006.

Lin, K.Y., and Yi, S., "Analysis of Interlaminar Stresses in Viscoelastic Composites," International Journal of Solids and Structures, Vol. 27, No. 7, pp. 929-945, 1991.

Lin, K.Y., and Hwang, I.H., "Thermo-Viscoelastic Analysis of Composite Materials," Journal of Composite Materials, Volume 23, No. 6, pp. 554-569, June 1989.

Lin, K.Y., and Hartmann, H., "Numerical Analysis of Stress Singularities at a Bonded Anisotropic Wedge," International Journal of Engineering Fracture Mechanics, Vol. 32, No. 2, pp. 211-224, 1989.

Lin, K.Y., and Tong, P., "Singular Finite Elements for the Fracture Analysis of V-Notched Plates," Intern. Journal for Numerical Methods in Engineering, Vol. 15, No. 9, pp. 1343-1354, Sept. 1980.

Mar, J.W., and **Lin, K. Y.**, "Characterization of Splitting Process in Graphite/Epoxy Composites," Journal of Composite Materials, Vol. 13, pp. 278-287, October 1979.

Mar, J.W., and **Lin, K.Y.**, "Fracture of Boron/Aluminum Composites with Discontinuities," Journal of Composite Materials, Vol. 11, pp. 405-421, October 1977.

Mar, J.W, and **Lin, K.Y.**, "Fracture Mechanics Correlation for Tensile Failure of Filamentary Composites with Holes," Journal of Aircraft, Vol. 14, No. 7, 1977.

Lin, K.Y., and Mar, J.W., "Finite Element Analysis of Stress Intensity Factors for Cracks at a Bi-Material Interface," International Journal of Fracture, Vol. 12, No. 4, pp. 521-531, Aug. 1976.

Grants & Contracts

P.I. of 56 research grants and contracts from FAA, NASA, Boeing, etc. Total research funding to date: about \$7,000,000.

Professional Memberships

American Institute of Aeronautics and Astronautics (Associate Fellow, 1995)
Sigma Xi

Professional Development

Developed UW/Boeing "Aircraft Composite Structural Analysis and Design" Certificate Program, 2004- present

Co-founded AMTAS- A FAA Center of Excellence on Advanced Materials for Transport Aircraft Structures, 2004- present