



Professor Wenbin Yu

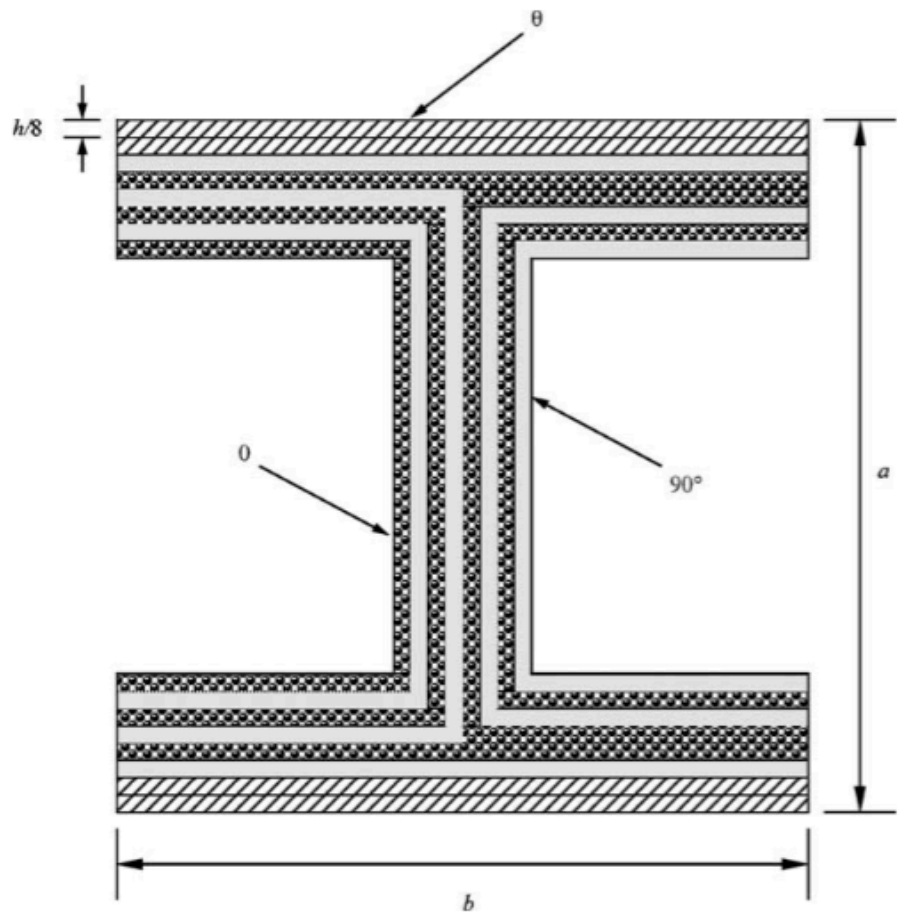


Fig. 6. Schematic of I-beam.

From: Yu, W.; Hodges, D. H.; Volovoi, V. V.; and Eduardo, D. F.: "A Generalized Vlasov Theory of Composite Beams," *Thin-Walled Structures*, vol. 43, no. 9, 2005, pp.1493-1511

See:

https://engineering.purdue.edu/AAE/people/Faculty/Faculty/showFaculty?resource_id=93761

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<http://www.neng.usu.edu/mae/faculty/wenbin/>

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<http://analyswift.com/team/wenbin-yu-phd/>

Aeronautics and Astronautics
Purdue University, West Lafayette, Indiana, USA

Education:

Georgia Tech, Aerospace Engineering, MS, 2000; PhD, 2002

Tsinghua University, China, Engineering Mechanics, MS, 1998

North China University of Water Conservancy and Hydroelectric Power, China, Hydraulic Engineering, BS, 1995

Research Interests:

Multiscale modeling, Structural mechanics, Micromechanics, Computational mechanics, Multiphysics modeling, Advanced materials/structures

Awards and Major Appointments:

- Director, Composites Virtual Factory HUB, 2015-
- Associate Director, Composites Design and Manufacturing HUB, 2014-
- Fellow, ASME, 2013
- Chair, ASME Structures and Materials Technical Committee (2014-)
- Editorial board, *Advances in Aircraft and Spacecraft Science*, An International Journal (2012-)
- Outstanding Researcher of the Year, Mechanical and Aerospace Engineering, Utah State U., 2008, 2009, 2012
- Five-Year Outstanding Researcher, Mechanical and Aerospace Engineering, Utah State University, 2011
- Technology Entrepreneur of the Year, Utah State University, 2009
- Georgia Tech Council of Outstanding Young Engineering Alumni Award, 2008
- Ferdinand P. Beer and E. Russell Johnston Jr. Outstanding New Mechanics Educator Award, ASEE, 2007
- Outstanding Teacher of the Year, Mechanical and Aerospace Engineering, Utah State University, 2006
- Luther S. Long III Memorial Award in Engineering Mechanics, Georgia Tech, 2002

Employment History:

Yu also is the chief technology officer of AnalySwift, a company that markets and licenses the technologies developed in his group at Purdue.

08/2013 – present Professor, Aeronautics and Astronautics, Purdue University

04/2008-08/2013 Associate Professor, Mechanical and Aerospace Engineering, Utah State University

08/2003-04/2008 Assistant Professor, Mechanical and Aerospace Engineering, Utah State University

05/2002-08/2003 Post Doctoral Research Fellow, Aerospace Engineering, Georgia Institute of Technology

Selected Publications:

- Ren, W.; Yu, W.; and Liu, W.: "Stress and Stability Analysis of Revolution Vessels (I)," *Journal of Tsinghua University Science and Technology*, vol. 39, no. 8, 1999, pp. 121-124 (in Chinese).
- Ren, W.; Yu, W.; Liu, W.; and Li, H.: "Stress and Stability Analysis of Revolution Vessels (II)," *Journal of Tsinghua University Science and Technology*, vol. 39, no. 8, 1999, pp. 125-127 (in Chinese).
- Yu, W.; Volovoi, V. V.; and Hodges, D. H.: "Validation of the Variational Asymptotic Beam Sectional Analysis," *AIAA Journal*, vol. 40, no. 10, 2002, pp. 2105-2113.
- Yu, W.; Hodges, D. H.; Volovoi, V.; and Cesnik, C. E. S.: "On Timoshenko-Like Modeling of Initially Curved and Twisted Composite Beams," *International Journal of Solids and Structures*, vol. 39, no. 19, 2002, pp. 5101-5121.
- Yu, W.; Hodges, D. H.; and Volovoi, V. V.: "Asymptotic Construction of Reissner-like Composite Plate Theory with Accurate Strain Recovery," *International Journal of Solids and Structures*, vol. 39, no. 20, 2002, pp. 5185-5203.
- Yu, W.; Hodges, D. H.; and Volovoi, V. V.: "Asymptotic Generalization of Reissner-Mindlin Theory: Accurate Three-Dimensional Recovery for Composite Shells," *Computer Methods in Applied Mechanics and Engineering*, vol. 191, no. 44, 2002, pp. 5087-5109.

- Yu, W.; Hodges, D. H.; and Volovoi, V. V.: "Asymptotically Accurate 3-D Recovery from Reissner-like Composite Plate Finite Elements," *Computers and Structures*, vol. 81, no. 7, 2003, pp. 439-454.
- Yu, W. and Hodges, D. H.: "Elasticity Solutions versus Asymptotic Sectional Analysis of Homogeneous, Isotropic, Prismatic Beams," *Journal of Applied Mechanics*, vol. 71, no. 1, 2004, pp. 15-23.
- Yu, W. and Hodges, D. H.: "A Geometrically Nonlinear Shear Deformation Theory for Composite Shells," *Journal of Applied Mechanics*, vol. 71, no. 1, 2004, pp. 1-9.
- Yu, W. and Hodges, D. H.: "An Asymptotic Approach for Thermoelastic Analysis of Laminated Composite Plates," *Journal of Engineering Mechanics*, vol. 130, no. 5, 2004, pp. 531-540.
- Yu, W. and Hodges, D. H.: "A Simple Thermopiezoelectric Model for Composite Plates with Accurate Stress Recovery," *Smart Materials and Structures*, vol. 13, no. 4, 2004, pp. 926-938.
- Yu, W. and Hodges, D. H.: "Mathematical Construction of an Engineering Thermopiezoelectric Model for Smart Composite Shells," *Smart Materials and Structures*, vol. 14, no. 1, 2005, pp. 43-55.
- Yu, W. and Hodges, D. H.: "Generalized Timoshenko Theory of the Variational Asymptotic Beam Sectional Analysis," *Journal of the American Helicopter Society*, vol. 50, no. 1, 2005, pp. 46-55.
- Yu, W.; Liao, L.; Hodges, D. H.; and Volovoi, V. V.: "Theory of Initially Twisted, Composite, Thin-Walled Beams," *Thin-Walled Structures*, vol. 43, no. 8, 2005, pp. 1296-1311.
- Yu, W.; Hodges, D. H.; Volovoi, V. V.; and Eduardo, D. F.: "A Generalized Vlasov Theory of Composite Beams," *Thin-Walled Structures*, vol. 43, no. 9, 2005, pp.1493-1511.
- Yu, W.: "Mathematical Construction of a Reissner-Mindlin Plate Theory for Composite Laminates," *International Journal of Solids and Structures*, vol. 42, no. 26, 2005, pp. 6680-6699.
- Chen, H. and Yu, W.: "Postbuckling and Mode Jumping Analysis of Composite Laminates Using an Asymptotically Correct, Geometrically Nonlinear Theory," *International Journal of Non-linear Mechanics*, vol. 41, no. 10, 2006, pp. 1143-1160.
- Roy, S. and Yu, W.: "An Asymptotically Correct Model for Initially Curved and Twisted Thin-Walled Composite Beams," *International Journal of Solids and Structures*, vol. 44, 2007, pp. 4039-4052.
- Chen, H. and Yu, W.: "Secondary Instability and Mode Jumping of Deep Thermoelastically Buckled Composite Laminates," *International Journal of Structural Stability and Dynamics*, vol. 7, no. 3, 2007, pp. 457-486.
- Liao, L. and Yu, W.: "Asymptotical Construction of a Fully Coupled, Reissner-Mindlin Model for Piezoelectric Composite Plates," *Smart Materials and Structures*, vol. 17, no. 1, Article 015010, 2008.
- Yu, W.; Kim, J. S.; Hodges, D. H.; and Cho, M.: "A Critical Evaluation of Two Reissner-Mindlin Type Models for Composite Laminated Plates," *Aerospace Science and Technology*, vol. 12, no. 5, 2008, pp. 408-417.
- Liao, L. and Yu, W.: "An Electromechanical Reissner-Mindlin Model for Laminated Piezoelectric Plates," *Composite Structures*, vol.88, no. 3, 2009, pp. 394-402.
- Roy, S. and Yu, W.: "A Coupled Timoshenko Model for Smart Slender Structures," *International Journal of Solids and Structures*, vol. 46, no. 13, 2009, pp. 2547-2555.
- Chen, H. and Yu, W.: "Asymptotical Construction of an Efficient High-Fidelity Model for Multilayer Functionally Graded Plates," *AIAA Journal*, vol. 48, no. 8, 2010, pp. 1171-1183.
- Chen, H. and Yu, W. and Capellaro, M.: "A Critical Assessment of Computer Tools for Calculating Composite Wind Turbine Blade Properties," *Wind Energy*, vol. 13, no. 6, 2010, pp. 497-516.
- Boston, J.; Swenson, E.; Kunz, D.; Yu, W.; and Blair, M.: "Experiments with Geometric Non-Linear Coupling for Analytical Validation," *Journal of Aircraft*, vol. 48, 2011, pp. 1136-1146.
- Rajagopal, A.; Hodges, D. H. and Yu, W.: "Asymptotic Beam Theory for Planar Deformation of Initially Curved Isotropic Strips," *Thin-Walled Structures*, vol. 50, 2012, pp. 106-115.

- Wang, Q. and Yu, W.: "Asymptotic multiphysics modeling of composite slender structures," *Smart Materials and Structures*, vol. 21, 2012, 035002.
- Yu, W. and Blair, M.: "GEBT: A General-Purpose Nonlinear Analysis Tool for Composite Beams," *Composite Structures*, vol. 94, 2012, pp. 2677-2689.
- Neto, M. A.; Leal, R. and Yu, W.: "A Triangular Finite Element with Drilling Degrees of Freedom for Static and Dynamic Analysis of Smart Laminated Structures," *Computers & Structures*, vol. 108-109, 2012, pp. 61-74.
- Wang, Q. and Yu, W.: "A Refined Model for Thermoelastic Analysis of Initially Curved and Twisted Composite Beams," *Engineering Structures*, vol. 48, 2013, 233-244.
- Demasi, L. and Yu, W.: "Assess the Accuracy of the Variational Asymptotic Plate and Shell Analysis (VAPAS) Using the Generalized Unified Formulation (GUF)," *Mechanics of Advanced Materials and Structures*, vol. 20, 2013, pp. 227-241.
- Ye, Z.; Berdichevsky, V.; and Yu, W.: "An Equivalent Plate Modeling of Corrugated Structures," *International Journal of Solids and Structures*, vol. 51, 2014, pp. 2073-2083.
- Chen, H. and Yu, W.: "A Multiphysics Model for Magneto-Electro-Elastic Laminates," *European Journal of Mechanics - A/Solids*, vol. 47, 2014, pp. 23-44.
- Jiang, F. and Yu, W.: "Non-linear Variational Asymptotic Sectional Analysis of Hyperelastic Beams," *AIAA Journal*, vol. 54, 2016, 679-690.
- Yu, W.: "A Unified Theory for Constitutive Modeling of Composites," *Journal of Mechanics of Materials and Structures*, to appear; <https://cdmhub.org/resources/1102>