



Professor Tongxi Yu (T.X. Yu)

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Summary:

Professor Tongxi Yu is the Dean of Fok Ying Tung Graduate School and Chair Professor of Mechanical Engineering at the Hong Kong University of Science and Technology. Professor Yu is widely known for his research and teaching into engineering plasticity, impact dynamics and energy absorption; in particular the dynamic plastic response of beams, plates and shells to impact or impulsive loading. His university education began in the Department of Mathematics and Mechanics at Peking University where he graduated as the top student in 1964. He stayed on for graduate studies at Peking University. Following his Ph.D., Tongxi was a post-doc at Brown University for a few months in which he and Paul Symonds wrote a provocative and influential paper on 'Counter-intuitive behavior in elastic-plastic beam dynamics'. His most recent research monograph is entitled Energy Absorption of Structures and Materials. Professor Yu's contributions to the field of Applied Mechanics have brought him international recognition.

Selected Publications:

Books:

G. Lu and T.X. Yu, Energy Absorption of Structures and Materials, 1st Edition, Woodhead Publishing, 2003, 424 pages

TongXi Yu and XinMing Qiu, Introduction to Impact Dynamics, Wiley, 2017, 266 pages

Journal Articles, etc.:

T.X. Yu, W. Johnson, W.J. Stronge, Stamping rectangular plates into doubly-curved dies, *Proc. Inst. Mech. Eng.*, 198 (1984), pp. 109-125

T.X. Yu and L.C. Zhang, The elastic wrinkling of an annular plate under uniform tension on its inner edge, *Int. J. Mech. Sci.*, vol. 28, pp. 729-737, 1986.

L.C. Zhang and T.X. Yu, The plastic wrinkling of an annular plate under uniform tension on its inner edge, *Int. J. Solids Struct.*, vol. 24, pp. 497-503, 1988.

T.X. Yu, W.J. Stronge, Large deflections of a rigid-plastic beam-on-foundation from impact, *Int J Impact Eng*, 9 (1) (1990), pp. 115-126

T.X. Yu, F.L. Chen, The large deflection dynamic plastic response of rectangular plates, *Int. J. Impact Eng.*, 12 (4) (1992), pp. 605-616

X.Y. Su, T.X. Yu, S.R. Reid, "Inertia-sensitive impact energy-absorbing structures. Part I: Effects of inertial and elasticity", *Int. J. Impact Engng.*, 16 (4) (1995), p. 651

T.X. Yu and L.C. Zhang, *Plastic Bending: Theory and Applications*, Vol. 2, Series of Engineering Mechanics, World Scientific, Singapore, 1996.

X. Huang, G. Lu, T.X. Yu, On the axial splitting and curling of circular metal tubes, *Int. J. Mech. Sci.*, 44 (2002), pp. 2369-2391

D. Ruan, G. Lu, B. Wang, and T.X. Yu, In-plane dynamic crushing of honeycombs—a finite element study, *Int. J. Impact. Eng.* 28 (2003), pp. 161-182.

D. Karagiozova and T.X. Yu, Post-collapse characteristics of ductile circular honeycombs under in-plane compression, *Int. J. Mech. Sci.* 47 (2005), pp. 570-602.

X. Huang, G. Lu, and T.X. Yu, Collapse of square metal tubes in splitting and curling mode, *J. Mech. Eng. Sci.* 220(Part C) (2006), pp. 1-13.

H.H. Ruan, Z.Y. Gao, T.X. Yu, "Crushing of thin-walled spheres and sphere arrays", *Int. J. Mech. Sci.*, 48 (2) (2006), pp. 117-133

X.L. Dong, Z.Y. Gao and T.X. Yu, Dynamic Crushing of Thin-Walled Spheres: An Experimental Study, *International Journal of Impact Engineering*, Vol. 35, 2008, pp. 717-726.

X.L. Dong, Z.Y. Gao and T.X. Yu, "Dynamic crushing of thin-walled spheres: An experimental study", *International Journal of Impact Engineering*, Vol. 35, No. 8, August 2008, pp. 717-726, Special Issue: Twenty-fifth Anniversary Celebratory Issue Honouring Professor Norman Jones on his 70th Birthday

L.L. Hu, T.X. Yu, Z.Y. Gao, X.Q. Huang, The inhomogeneous deformation of polycarbonate circular honeycombs under in-plane compression, *Int. J. Mech. Sci.*, 50 (7) (2008), pp. 1224-1236

X.W. Zhang, H. Su, T.X. Yu, "Energy absorption of an axially crushed square tube with a buckling initiator", *Int J Impact Eng*, 36 (2009), pp. 402-417

X.W. Zhang, Q.D. Tian, T.X. Yu, Axial crushing of circular tubes with buckling initiators, *Thin-Walled Struct*, 47 (2009), pp. 788-797

X.M. Qiu, J. Zhang, T.X. Yu, Collapse of periodic planar lattices under uniaxial compression, part I: quasi-static strength predicted by limit analysis, *Int. J. Impact Eng.* 36 (2009) 1223-1230.

X.M. Qiu, J. Zhang, T.X. Yu, Collapse of periodic planar lattices under uniaxial compression, part II: dynamic crushing based on finite element simulation, *Int. J. Impact Eng.* 36 (2009) 1231-1241.

J.L. Yang, G.Y. Lu, T.X. Yu, S.R. Reid, "Experimental study and numerical simulation of pipe-on-pipe impact", *Int J Impact Eng*, 36 (10) (2009), pp. 1259-1268

L.L. Hu and T.X. Yu, Dynamic crushing strength of hexagonal honeycombs, *Int. J. Impact. Eng.* 37 (2010), pp. 467-474.

S. Xu, J.H. Beynon, D. Ruan and T.X. Yu, "Strength enhancement of aluminium honeycombs caused by entrapped air under dynamic out-of-plane compression", *International Journal of Impact Engineering*, Vol. 47, pp 1-13, September 2012

D. Karagiozova, X.W. Zhang, T.X. Yu, "Static and dynamic snap-through behaviour of an elastic spherical shell", *Acta Mech. Sin.*, 28 (3) (2012), pp. 695-710

D. Karagiozova, T.X. Yu and G. Lu, "Transverse blast loading of hollow beams with square cross-sections", *Thin-Walled Structures*, Vol. 62, pp 169-175, January 2013

L.L. Hu, F.F. You, and T.X. Yu, Effect of cell-wall angle on the in-plane crushing behaviour of hexagonal honeycomb, *Mat. Des.* 46 (2013), pp. 511-523.

Z. Fan, G. Lu, T.X. Yu and K. Liu, "Axial crushing of triangular tubes", *International Journal of Applied Mechanics*, Vol. 5, No. 1, 1350008, March 2013

C.J. Shen, G. Lu, T.X. Yu, Dynamic behavior of graded honeycombs – a finite element study, *Compos. Struct.* 98 (2013) 282–293.

L.L. Hu, T.X. Yu, Mechanical behavior of hexagonal honeycombs under low-velocity impact – theory and simulations, *Int J Solids Struct.* 50 (2013), pp. 3152-3165

D. Karagiozova, T.X. Yu, G. Lu and X. Xiang, “Response of a circular metallic hollow beam to an impulsive loading”, *Thin-Walled Structures*, Vol. 80, pp 80-90, July 2014

P. Xue, M.L. Ding, C.F. Qiao, and T.X. Yu, Crashworthiness study of a civil aircraft fuselage section, *Latin Am. J. Solids Struct.* 11 (9) (2014), pp. 1615–1627.

L.L. Hu, X.L. He, G.P. Wu and T.X. Yu, “Dynamic crushing of the circular-celled honeycombs under out-of-plane impact”, *International Journal of Impact Engineering*, Vol. 75, pp 150-161, January 2015

Haibo Wang, Jailing Yang, Hua Liu, Yuxin Sun and T.X. Yu, “Internally nested circular tube system subjected to lateral impact loading”, *Thin-Walled Structures*, Vol. 91, pp 72-81, June 2015

B.F. Xing, D.Y. Hu, Y.X. Sun, J.L. Yang and T.X. Yu, “Effects of hinges and deployment angle on the energy absorption characteristics of a single cell in a deployable energy absorber”, *Thin-Walled Structures*, Vol. 94, pp 107-119, September 2015

Pengfei Wang, Xin Zhang, He Zhang, Xiaotuo Li, Peigang He, Guoxing Lu, T.X. Yu and Jinglei Yang, “Energy absorption mechanisms of modified double-aluminum layers under low-velocity impact”, *International Journal of Applied Mechanics*, Vol. 7, No. 6, 1550086, December 2015

L.L. Hu, Zh.H. Zeng and T.X. Yu, “Axial crushing of pressurized cylindrical tubes”, *International Journal of Mechanical Sciences*, Vol. 107, pp 126-135, March 2016

Jianxing Hu, Guoyun Lu, Huiwei Yang, T.X. Yu and Jun Xu, “Dynamic response of internally nested hemispherical shell system to impact loading”, *Thin-Walled Structures*, Vol. 120, pp 29-37, November 2017

Ling Zhu, Kailing Guo, Yinggang Li, T.X. Yu and Qingwen Zhou, “Experimental study on the dynamic behaviour of aluminium foam sandwich plates under single and repeated impacts at low temperature”, *International Journal of Impact Engineering*, Vol. 114, pp 123-132, April 2018

Kailing Guo, Ling Zhu, Yinggang Li, T.X. Yu, “Numerical study on mechanical behavior of foam core sandwich plates under repeated impact loadings”, *Composite Structures*, Vol. 224, Article 111030, 15 September 2019

Kailing Guo, Ling Zhu, Yinggang Li, T.X. Yu, Ajit Sheno and Qingwen Zhou, “Experimental investigation on the dynamic behaviour of aluminum foam sandwich plate under repeated impacts”, *Composite Structures*, Vol. 200, pp 298-305, 15 September 2018

Lubing Wang, Sha Yin, Zhexun Yu, Yonggang Wang, T.X. Yu, Jing Zhao, Zhengchao Xie, Yangxing Li, Jun Xu, “Unlocking the significant role of shell material for lithium-ion battery safety”, *Materials and Design*, Vol. 160, pp 601-610, 2018

Wen Zhang, Sha Yin, T.X. Yu and Jun Xu, “Crushing resistance and energy absorption of pomelo peel inspired hierarchical honeycomb”, *International Journal of Impact Engineering*, Vol. 125, pp 163-172, March 2019

Ling Zhu, Lele Duan, Mingsheng Chen, T.X. Yu and Preben Terndrup Pedersen, “Equivalent design pressure for ship plates subjected to moving slamming impact loads”, *Marine Structures*, Vol. 71, Article 102741, May 2020

L.R. Tian, F.L. Chen, L. Zhu and T.X. Yu, “Large deformation of square plates under pulse loading by combined saturation analysis and membrane factor methods”, *International Journal of Impact Engineering*, Vol. 140, Article 103546, June 2020