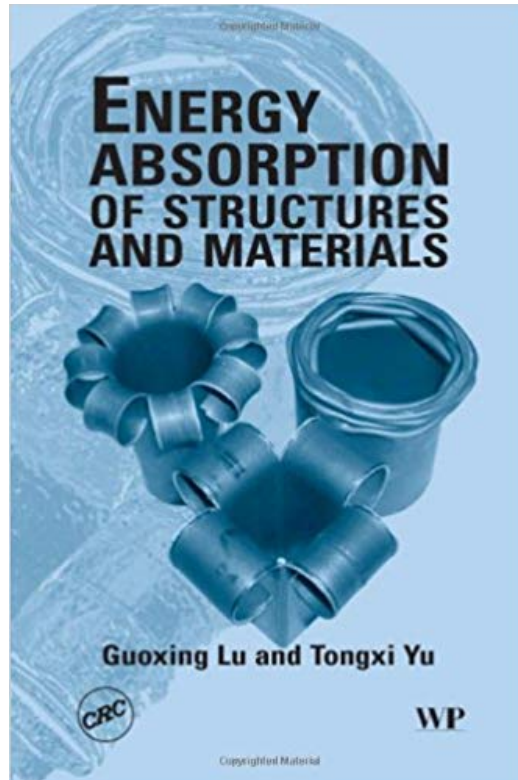




Professor Tongxi Yu



See:

https://www.seng.ust.hk/web/eng/people_detail.php?id=227

<http://repository.ust.hk/ir/AuthorProfile/yu-tongxi>

https://scholar.google.com/citations?user=c1K_9MAAAAJ&hl=en

<https://prabook.com/web/tongxi.yu/377385>

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Biography:

Prof Yu has extensive research experience in impact dynamics and engineering plasticity. Before joining HKUST, he was a professor and head of the Solid Mechanics Division in Peking University, Beijing, China (1984-1991), and a reader in UMIST, UK (1992-1995). He was the Head of the Department of Mechanical Engineering, HKUST, in 2002-2007; was Associate Vice-President for Research and Development and the Founding Dean of Fok Ying Tung Graduate School, HKUST, in 2007-2010. Before retirement in July 2010, he was Chair Professor of Mechanical and Aerospace Engineering. He has published 11 books and more than 350 refereed journal papers. In 2012-2015, he was Senior Advisor to Vice-President for Research and Graduate Studies at HKUST. He is Fellow of ASME, IMechE and HKIE; Co-editor of International Journal of Mechanical Sciences and Associate Editor of International Journal of Impact Engineering.

Research Interests:

Impact dynamics; dynamic response and failure of structures under impact; energy absorbing materials and systems; cellular materials; textile composites and nano-composites.

Selected Publications:

- Johnson, W. & Yu, T.X. (1980). The angle of fold and the plastic work done in the folding of developable flat sheets of metal. *Journal of Mechanical Engineering Science*, 22, 233–241.
- Xiaoqiang Wu and Tongxi Yu, “The complete process of large elastic-plastic deflection of a cantilever”, *Acta Mechanica Sinica*, Vol. 2, No. 4, November 1988
- Zhang, T. G., and Yu, T. X., 1989, “A Note on a Velocity Sensitive Energy Absorbing Structure,” *Int. J. Impact Eng.*, 8 , pp. 43–51.
- Zhang Liangchi, Yu Tongxi and Wang Ren, “A new approach of predicting bifurcation points of elastic-plastic buckling of plates and shells”, *Acta Mechanica Sinica*, Vol. 5, No. 2, pp 145-151, May 1989
- 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
- Yu Tongxi and Chen Faliang, “Analysis of the large deflection dynamic plastic response of simply-supported circular plates by the ‘membrane factor method’”, *Acta Mechanica Sinica*, Vol. 6, No. 4, November 1990
- Wang Xiaodong and Yu Tongxi, “Dynamic response of elastic-plastic ideal sandwich beams, *Acta Mechanica Sinica*, Vol. 8, No. 1, February 1992
- B. Wang, G. Lu and T.X. Yu, “A numerical analysis of the large deflection of an elastoplastic cantilever”, *Structural Engineering and Mechanics*, Vol. 3, No. 2, pp 163-172, 1995
- H. M. Wen , T. X. Yu & T. Y. Reddy (1995) A Note on Clamped Circular Plates under Impulsive Loading , *Mechanics of Structures and Machines*, 23:3, 331-342
- Su, X. Y., Yu, T. X., and Reid, S. R., 1995, “Inertia-Sensitive Impact Energy Absorbing Systems, Part I—Effect of Inertia and Elasticity,” *Int. J. Impact Eng.*, 16 , pp. 561–672.
- Su, X. Y., Yu, T. X., & Reid, S. R. (1995). Inertia-sensitive impact energy-absorbing structures part I: Effects of inertia and elasticity. *International Journal of Impact Engineering*, 16(4), 651–672.
- Su, X. Y., Yu, T. X., and Reid, S. R., 1995, “Inertia-Sensitive Impact Energy-Absorbing Structures Part II-Effect of Strain Rate,” *Int. J. Impact Eng.*, 16 , pp. 673–689.
- T.X. Yu and F.L. Chen, “Failure modes and criteria of plastic structures under intense dynamic loading: A review”, *Metals and Materials*, Vol. 4, No. 3, pp 219-226, 1998
- K.Q. Wu and T.X. Yu, “Modelling of dynamic behaviour of elastic-plastic structures under impact”, *Key Engineering Materials*, Vols. 145-149, pp 355-360, 1998
- Chau, K.T., Wei, X.X., Wong, R.H.C., Yu, T.X.: Fragmentation of brittle spheres under static and dynamic compressions: experiments and analyses. *Mech. Mater.* 32(9), 543–554 (2000)
- Yu, T. X., Tao, X. M. and Xue, P. 2000. The energy absorbing capacity of grid-domed textile composites. *Composite Sci. Technol.*, 60: 785–800
- Xue, P., Yu, T. X. and Tao, X. M. 2000. Effect of cell geometry on the energy-absorbing capacity of grid-domed textile composites. *Composites: Part A*, 31: 861–868.
- Jie, M., and Yu, T. X., 2000, “Analytical Modelling of Dynamic Plastic Buckling of an Axially Loaded Strain-Rate Sensitive Bar,” *Int. J. Solids Struct.*, 37 , pp. 1471–1481.
- P. Xue, T.X. Yu and X.M. Tao, “Large deformation model of flat-topped conical shell under axial compression”, *Key Engineering Materials*, Vols. 177-180, pp 745-750, 2000
- Xue, P., Yu, T. X. and Tao, X. M. 2001. Flat-topped conical shell under axial compression. *Int. J. Mech. Sci.*, 43: 2125–2145.
- Lu, G. and Yu, T. X. 2003. *Energy Absorption of Structures and Materials*, Cambridge: Woodhead Publishing.

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

Gao, Z. Y., Yu, T. X., and Lu, G., 2005, “A Study on Type II Structures. Part I: A Modified One-Dimensional Mass Spring Model,” *Int. J. Impact Eng.*, 31, pp. 895–910.

Chunzhang Zhu, W. Guo, T.X. Yu and C.H. Woo, “Radial compression of carbon nanotubes: Deformation and damage, super-elasticity and super-hardness”, *Nanotechnology*, Vol. 16, pp 1035-1039, 2005

X. Huang, G. Lu and T.X. Yu, “Collapse of square metal tubes in splitting and curling mode”, *Proc. IMechE*, Vol. 220, Part C: *J. Mechanical Engineering Science*, January 2006

Ruan, H. H., Gao, Z. Y., Yu, T. X.: Crushing of thin-walled spheres and sphere arrays. *International Journal of Mechanical Sciences* 48, 117–133 (2006)

T.X. Yu and D. Karagiozova, “Effects of the structural topology and connection size on the strength of circular honeycombs under in-plane compression”, *IUTAM Symposium on Size Effects on Material and Structural Behavior at Micron and Nano Scales*, pp 107-114, 2006

Karagiozova, D., Yu, T.X., Gao, Z.Y.: Modeling of MHS cellular solid in large strains. *Int. J. Mech. Sci.* 48(11), 1273–1286 (2006)

D. Karagiozova, T.X. Yu and Z.Y. Gao, “Stress-strain relationship for metal hollow sphere materials as a function of their relative density”, *ASME Journal of Applied Mechanics*, Vol. 74, pp 898-907, September 2007

X.W. Zhang, J.L. Yang and T.X. Yu, “Elastic-plastic behavior of a semicircular frame being pressed against a rigid plane”, *Acta Mech. Sin.*, Vol. 24, pp 419-432, 2008

Dong, X. L., Gao, Z. Y., Yu, T. X.: Dynamic crushing of thin-walled spheres: An experimental study. *International Journal of Impact Engineering* 35, 717–726 (2008)

Z.Y. Gao, T.X. Yu and H. Zhao, “Mechanical behavior of metallic hollow sphere materials: Experimental Study”, *Journal of Aerospace Engineering*, October 2008

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

J.L. Yu, Y.-D. Liu, Z.-J. Zheng, J.-R. Li and T.X. Yu, “Influences of inertia and material property on the dynamic behavior of cellular metals”, Chapter in an unnamed book, December 2008

B. Zhu, T.X. Yu, J. Teng and X.M. Tao, “Theoretical modeling of large shear deformation and wrinkling of plain woven composite”, *Journal of Composite Materials*, Vol. 43, 2009

B. Zhu, T.X. Yu and X.M. Tao, “Large shear deformation of E-glass/polypropylene woven fabric composites at elevated temperatures”, *Journal of Reinforced Plastics and Composites*, Vol. 28, No. 21, 2009

Zhang, X. W., Fu, R., Yu, T. X.: Experimental study on static/dynamic local buckling of ping pong balls compressed onto a rigid plate. *International Conference of Experimental Mechanics 2009*, Singapore, 18–20 November (2009)

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

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

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

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 (2009), pp. 1259-1268

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

X.W. Zhang, T.X. Yu and W.J. Wen, "Electro-rheological cylinders used as impact energy absorbers", *Journal of Intelligent Material Systems and Structures*, March 19, 2010

Xue, P., Qiao, C. F. and Yu, T. X. 2010. Crashworthiness study of a keel beam structure. *Int. J. Mech. Sci.*, 53: 672–679.

X.M. Qiu, T.X. Yu, Some topics in recent advances and applications of structural impact dynamics, *ASME Appl. Mech. Rev.*, 38 (64) (2011), 034001

Zhang, X.W. and Yu, T.X., "Experimental and numerical study on the dynamic buckling of ping-pong balls under impact loading", *International Journal of Nonlinear Sciences and Numerical Simulations*. vol. 13, No. 1, 2012, p. 81-92

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

Shen, C.J., Yu, T.X., Lu, G.: Double shock mode in graded cellular rod under impact. *Int. J. Solids Struct.* 50, 217–233 (2013)

C.J. Shen, G. Lu, and T.X. Yu, Dynamic behavior of graded honeycombs-A finite element study, *Composite Struct.* 98 (2013), pp. 282–293.

Hu, L.L., You, F.F., Yu, T.X.: Effect of cell-wall angle on the in-plane crushing behaviour of hexagonal honeycombs. *Mater. Des.* 46, 511–523 (2013)

Yin, S., Yu, T., Liu, P.: Free vibration analyses of FGM thin plates by isogeometric analysis based on classical plate theory and physical neutral surface. *Adv. Mech. Eng.* 5, 634584 (2013)

Fan, Z. , Lu, G. , Yu, T. X. , and Liu, K. , 2013, " Axial Crushing of Triangular Tubes," *Int. J. Appl. Mech.*, 05(1), p. 1350008.

C.J. Shen, G. Lu and T.X. Yu, "Cellular rod with varying cross-section under impact", *Proc. Indian Natn Sci Acad*, Vol. 79, No. 4, pp 661-668, December 2013

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

P. Xue, M.L. Ding, C.F. Qiao and T.X. Yu, "Crashworthiness study of a civil aircraft fuselage section", *Latin American Journal of Solids and Structures*, January 2014

F.. Chen and T.X. Yu, "Membrane factor method for large deflection response of beams and plates to intense dynamic loading", *Structures under Shock and Impact XIII*, WIT Transactions on the Built Environment, Vol. 141, 2014

Yanfei Xiang, Min Wang, Tongxi Yu and Liming Yang, "Key performance indicators of tubes and foam-filled tubes used as energy absorbers", *International Journal of Applied Mechanics*, Vol. 7, No. 4, 1550060, August 2015

Yuzhe Liu, Xinming Qiu, Tongxi Yu, Jaiwei Tao and Ze Cheng, "How does a woodpecker work? An impact dynamics approach", *Acta Mech. Sin.*, Vol. 31, No. 2, pp 181-190, 2015

Yuzhe Liu, Xinming Qiu, Xiong Zhang and T.X. Yu, "Response of woodpecker's head during pecking process simulated by material point method", *PLoS ONE*, Vol. 10, No. 4, e0122677, 2015

Ling Zhu, Kailing Guo, Yinggang Li, T.X. Yu and Qingwen Zhou, "Impact resistance of aluminium foam sandwich plate under low temperatures", *2nd International Conference in Sports Science & Technology (ICSST)*, 12-13 December 2016

Jianxing Hu, Sha Yin, T.X. Yu and Jun Xu, "Dynamic compressive behavior of woven flax-epoxy-laminated composites", *International Journal of Impact Engineering*, Vol. 117, pp 63-74, 2018

Shiyun Shi, Ling Zhu and Tongxi Yu, "Elastic-plastic response of clamped square plates subjected to repeated quasi-static uniform pressure", *International Journal of Applied Mechanics*, Vol. 10, No. 6, 1850067, July 2018

Shiyun Shi, Ling Zhu, Tongxi Yu, "Elastic-Plastic Response of Clamped Square Plates Subjected to Repeated Quasi-Static Uniform Pressure", *International Journal of Applied Mechanics*, doi:

10.1142/S1758825118500679, 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