

Professor Wei Gao

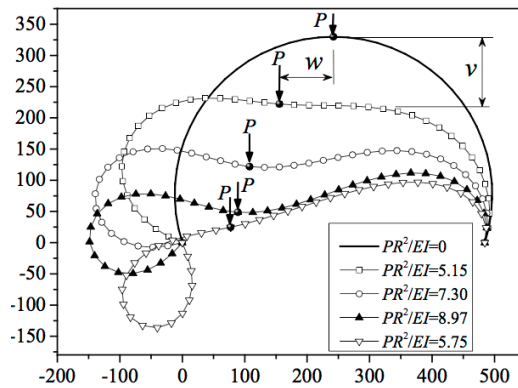


Fig. 8. Deformed configurations of the clamped-hinged deep circular arch

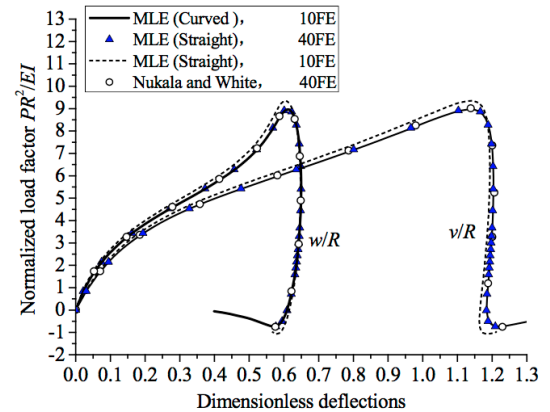


Fig. 7. Equilibrium paths obtained with different meshes

From: Wenxiong Li, Haitao Ma and Wei Gao, “Geometrically exact curved beam element using internal force field defined in deformed configuration”, *International Journal of Non-Linear Mechanics*, Vol. 89, pp 116-126, March 2017, DOI: 10.1016/j.ijnonlinmec.2016.12.008

See:

<https://research.unsw.edu.au/people/professor-wei-gao>

https://www.researchgate.net/profile/Wei_Gao31

<https://scholar.google.com/citations?user=Gb106gQAAAAJ&hl=en>

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Research Interests:

AI and machine learning in structural analysis and design
Stochastic structural analysis and safety assessment in CAD/CAE
Computation uncertainty/stochastic mechanics
Composite materials and structures
Stability and reliability analysis
Structural optimization and metamaterial design
Vibration and control

Selected Publications:

Taicong Chen, Haitao Ma and Wei Gao, “A new approach to stability analysis of frame structures using Trefftz-type elements”, *Journal of Constructional Steel Research*, Vol. 82, pp 153-163, March 2013
Peng Wang, Wei Gao, Zhiyi Cao, Kenneth M. Liechti and Rui Huang “Numerical analysis of circular graphene bubbles”, *J. Appl. Mech.* 2013;80(4):040905-040905-9. doi:10.1115/1.4024169. July 2013
Wei Gao and Rui Huang, “Thermomechanics of monolayer graphene: Rippling, thermal expansion and elasticity”, *Journal of the Mechanics and Physics of Solids*, Vol. 66, pp 42-58, May 2014
Hou Man, Chongmin Song, Wei Gao and Francis Tin-Loi, “Semi-analytical analysis for piezoelectric plate using the scaled boundary finite-element method”, *Computers & Structures*, Vol. 137, pp 47-62, June 2014
Kai Luo, Yong-Lin Pi, Wei Gao, Mark Andrew Bradford and David Hui, “Investigation into long-term behaviour and stability of concrete-filled steel tubular arches”, *Journal of Constructional Steel Research*, Vol. 104, pp 127-136, January 2015

Di Wu, Wei Gao, Francis Tin-Loi and Yong-Lin Pi, "Probabilistic interval limit analysis for structures with hybrid uncertainty", *Engineering Structures*, Vol. 114, pp 195-208, May 2016

Wenxiong Li, Haitao Ma and Wei Gao, "Geometrically exact curved beam element using internal force field defined in deformed configuration", *International Journal of Non-Linear Mechanics*, Vol. 89, pp 116-126, March 2017, DOI: 10.1016/j.ijnonlinmec.2016.12.008

Kang Gao, Wei Gao, Di Wu and Chongmin Song, "Nonlinear dynamic characteristics and stability of composite orthotropic plate on elastic foundation under thermal environment", *Composite Structures*, Vol. 168, pp 619-632, May 2017

Di Wu, Wei Gao and Sawekchai Tangaramvong, "Time-dependent buckling analysis of concrete-filled steel tubular arch with interval visoelastic effects", *ASCE Journal of Structural Engineering*, Vol. 143, No. 7 July 2017

Kang Gao, Wei Gao, Di Yu and Chongmin Song, "Nonlinear dynamic stability analysis of Euler-Bernoulli beam-columns with damping effects under thermal environment", *Nonlinear Dynamics*, Vol. 90, No. 4, pp 2423-2444, December 2017

Kang Gao, Wei Gao, Di Wu and Chongmin Song, "Nonlinear dynamic stability of the orthotropic functionally graded cylindrical shell surrounded by Winkler-Pasternak elastic foundation subjected to a linearly increasing load", *Journal of Sound and Vibration*, Vol. 415, pp 147-168, February 2018

Kang Gao, Wei Gao, Di Wu and Chongmin Song, "Nonlinear dynamic buckling of the imperfect orthotropic E-FGM circular cylindrical shells subjected to the longitudinal constant velocity", *International Journal of Mechanical Sciences*, Vols. 138-139, pp 199-209, April 2018

Kang Gao, Wei Gao, Binhua Wu, Di Wu and Chongmin Song, "Nonlinear primary resonance of functionally graded porous cylindrical shells using the method of multiple scales", *Thin-Walled Structures*, Vol. 125, pp 281-293, April 2018

Chao Dou, Yong-Lin Pi and Wei Gao, "Restraining requirements for lateral elastic-plastic buckling of columns accounting for random imperfections", *Engineering Structures*, Vol. 171, pp 260-268, 15 September 2018

Chao Dou, Yu-Fei Guo, Zi-Qin Jiang, Wei Gao and Yong-Lin Pi, "In-plane buckling and design of steel tubular truss arches", *Thin-Walled Structures*, Vol. 130, pp 613-621, September 2018

Chao Dou, Yong-Lin Pi and Wei Gao, "Shear resistance and post-buckling behavior of corrugated panels in steel plate shear walls", *Thin-Walled Structures*, Vol. 131, pp 816-826, October 2018

Qingya Li, Di Wu, Xiaojun Chen, Lei Liu, and Wei Gao, "Nonlinear vibration and dynamic buckling analyses of sandwich functionally graded porous plate with graphene platelet reinforcement resting on Winkler-Pasternak elastic foundation", *International Journal of Mechanical Sciences*, Vol. 148, pp 596-610, November 2018

Sanjay Singh Tomar, Sunny Zafar, Mohammad Talha, Wei Gao and David Hui, "State of the art of composite structures in non-deterministic framework: A review", *Thin-Walled Structures*, Vol. 132, pp 700-716, November 2018

Kang Gao, Wei Gao, Da Chen and Jie Yang, "Nonlinear free vibration of functionally graded graphene platelets reinforced porous nanocomposite plates resting on elastic foundation", *Composite Structures*, Vol. 204, pp 831-846, 15 November 2018

Kang Gao, Wei Gao, Binhua Wu and Chongmin Song, "Nondeterministic dynamic stability assessment of Euler-Bernoulli beams using Chebyshev surrogate model", *Applied Mathematical Modelling*, Vol. 66, pp 1-25, February 2019

Zhanpeng Liu, Chengwei Yang, Wei Gao, Di Wu and Guoyin Li, "Nonlinear behaviour and stability of functionally graded porous arches with graphene platelets reinforcements", *International Journal of Engineering Science*, Vol. 137, pp 37-56, April 2019

Qingya Li, Qihan Wang, Di Wu, Xiaojun Chen, Yuguo Yu and Wei Gao, “Geometrically nonlinear dynamic analysis of organic solar cell resting on Winkler-Pasternak elastic foundation under thermal environment”, *Composites Part B: Engineering*, Vol. 163, pp 121-129, 15 April 2019

Keyan Li, Di Wu, Wei Gao and Chongmin Song, “Spectral stochastic isogeometric analysis of free vibration”, *Computer Methods in Applied Mechanics and Engineering*, Vol. 350, pp 1-27, 15 June 2019