Professor Feng Fan

[from http://hit-times.hit.edu.cn/issue/show/6 (Harbin Institute of Technology (HIT) Times, 2017)]

See:
http://sydney.edu.au/news/civil/318.html?newsstoryid=1518 (dated 2 January 2007)
http://hit-times.hit.edu.cn/issue/show/6 (Harbin Institute of Technology (HIT) Times, 2017)

Research Center of Space Structures, Faculty of Civil Engineering
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Activity (from http://sydney.edu.au/news/civil/318.html?newsstoryid=1518 , dated 2 January 2007):
Professor Feng Fan is Professor and Director of the Research Centre of Space Structures at Harbin Institute of Technology. Professor Feng Fan is engaged in doing research, teaching, and designing of space structures, focusing mainly on theory and methodology study of anti-seismic design of reticulated shells, structural vibration control of reticulated shells, and dynamic strength failure and failure mechanism of reticulated shells under severe earthquakes. He delivers lectures of Space Structures to both undergraduate and postgraduate students in Harbin Institute of Technology. He has developed the software to enhance the design of spatial grids structures---ASSAP1 (The Advanced Space Structure Analysis Program 1). He is in charge of a project, Dynamic Stability of Reticulated Shells under 3-D Seismic Input, supported by the National Natural Science Foundation of China (NNSFC). He is also a main participant of a key project - Study of Earthquake-resistant and Wind-resistant Theory of Space Structures, also supported by the NNSFC. At present, he is one of main members of the national project -FAST (Five-hundred-meter Aperture Spherical Telescope) and Professor Feng Fan is in change of the structural engineering of FAST. He has published more than 50 papers related to his study. He has designed and has overseen the design of more than fifty spatial structures, ranged mainly from large scale to medium sized ones.

2017 Award [from http://hit-times.hit.edu.cn/issue/show/6 (Harbin Institute of Technology (HIT) Times, 2017)]:
2nd Prize: National Scientific and Technological Progress Award
The project “Study and Application on Key Technologies of Large Span Spatial Steel Structures” won the 2nd prize of National Scientific and Technological Progress Award, which was undertaken by Prof. Fan Feng and CAS member Shen Shizhao’s research team from School of Civil Engineering.
In the past 30 years, rapid progress has been made in the field of Chinese large span spatial steel structures.

Plenty of notable difficulties occurred with the increasing span and diversified structure styles, such as multi-nonlinear properties of structures, uncertainty of loading and obvious spatial correlation effects.

Selected Publications:

Fan Feng; Shen Shi-zhao, Vibration reducing analysis and experimental study of viscous damper on reticulated shells, Earthquake Engineering And Engineering Vibration;2000-01

Fan Feng, Shen Shi-zhao, Vibration reducing analysis of single-layer reticulated shells with viscous-elastic dampers, Earthquake Engineering and Engineering Vibration;2003-03

Shizhao Shen, Jihui Xing and Feng Fan, "Dynamic behavior of single-layer latticed cylindrical shells subjected to seismic loading", Earthquake Engineering and Engineering Vibration, Vol. 2, No. 2, pp 269-279, December 2003

Zhi, X. D., Fan, F., and Shen, S. Z. (2007). "Failure mechanisms of single layer reticulated domes subjected to earthquake." Journal of the International Association for Shell and Spatial Structures, 48(1), pp. 29–44

H.Z. Zhou, F. Fan and E.C. Zhu, "Buckling of reticulated laminated veneer lumber shells in consideration of the creep", Engineering Structures, Vol. 32, No. 9, September 2010, pp. 2912-2918

Xudong Zhi, Feng Fan and Shizhao Shen, "Elasto-plastic instability of single-layer reticulated shells under dynamic actions", Thin-Walled Structures, DOI: 10.1016/j.tws.2010.04.005, 2010

F. Fan, Z. Cao, and S. Shen, Elasto-plastic stability of single-layer reticulated shells, Thin walled Struct, vol. 48, pp. 827-836, 2010.

Zhiwei Yu, Zudong Zhi, Feng Fan and Chen Lu, "Failure mechanism of single-layer saddle-curve reticulated shells with material damage accumulation considered under severe earthquake", International Journal of Steel Structures, Vol. 12, No. 1, pp 125-137, March 2012

Xu-Dong Zhi, Feng Fan and Shi-Zhao Shen, "Failure mechanism of single-layer cylindrical reticulated shells under earthquake motion", International Journal of Structural Stability and Dynamics, Vol. 12, No. 2, 233, March 2012

Feng Fan, Jiachuan Yan and Zhenggang Cao, "Stability of reticulated shells considering member buckling", Journal of Constructional Steel Research, Vol. 77, pp 32-42, October 2012

Feng Fan, Minling Wang, Zhenggang Cao and Shizhao Shen, "Seismic behaviour and seismic design of single-layer reticulated shells with semi-rigid joint system", Advances in Structural Engineering, Vol. 15, No. 10, pp 1829-1841, October 2012

Feng Fan, Jiachuan Yan and Zhenggang Cao, "Elasto-plastic stability of single-layer reticulated domes with initial curvature of members", Thin-Walled Structures, Vol. 60, pp 239-246, November 2012

X.D. Zhi, G.B. Nie, F. Fan and S.Z. Shen, "Vulnerability and risk assessment of single-layer reticulated domes subjected to earthquakes", ASCE Journal of Structural Engineering, Vol. 138, No. 12, December 2012

Gui-Bo Nie, Feng Fan and Xu-Dong Zhi, "Test on the suspended dome structure and joints of Dalian Gymnasium", Advances in Structural Engineering, Vol. 16, No. 3, pp 467-485, March 2013

Huihuan Ma, Feng Fan, Jie Zhong and Zhenggang Cao, "Stability analysis of single-layer elliptical paraboloid lattice shells with semi-rigid joints", Thin-Walled Structures, Vol. 72, pp 128-138, November 2013

Shuang Niu, Kim J.R. Rasmussen and Feng Fan, "Distortional-global interaction buckling of stainless steel C-beams: Part I – Experimental Investigation", Journal of Constructional Steel Research, Vol. 96, pp 127-139, May 2014

Shuang Niu, Kim J.R. Rasmussen and Feng Fan, "Distortional-global interaction buckling of stainless steel C-beams: Part II – Numerical study and design", Journal of Constructional Steel Research, Vol. 96, pp 40-53, May 2014

J.L. Ma, C.Q. Wu, Z.D. Zhi and F. Fan, "Prediction of confined blast loading in single-layer lattice shells", Advances in Structural Engineering, Vol. 17, No. 7, pp 1029-1043, July 2014

Cao Zhenggang and Fan Feng, “Research on The Stability Behaviors of Single-Layer Shells Based on The Whole-Course Response Analysis Method”, 11th World Congress on Computational Mechanics (WCCM XI), 5th European Conference on Computational Mechanics (ECCM V), 6th European Conference on Computational Fluid Dynamics (ECFD VI) E. Oñate, J. Oliver and A. Huerta (Eds), Barcelona, Spain, 2014
Gul-bo Nie, Xu-dong Zhi, Feng Fan and Jun-wu Dai, “Seismic performance evaluation of single-layer reticulated dome and its fragility analysis”, Journal of Constructional Steel Research, Vol. 100, pp 176-182, September 2014
Huihuan Ma, Feng Fan, Peng Wen, Hao Zhang and Shizhao Shen, “Experimental and numerical studies on a single-layer cylindrical reticulated shell with semi-rigid joints”, Thin-Walled Structures, Vol. 86, pp 1-9, January 2015
Guy Oyeniran Adeoli, Feng Fan, Yujin Wang and Ximei Zhai, “Stability of 6082-T6 aluminium alloy columns with H-section and rectangular hollow sections”, Thin-Walled Structures, Vol. 89, pp 1-16, April 2015
Yujin Wang, Feng Fan and Shibin Lin, “Experimental investigation on the stability of aluminium alloy 6082 circular tubes in axial compression”, Thin-Walled Structures, Vol. 89, pp 54-66, April 2015
Shuang Niu, Kim J.R. Rasmussen and Feng Fan, “Local-global interaction buckling of stainless steel I-beams. I: Experimental investigation”, ASCE Journal of Structural Engineering, Vol. 141, No. 8, August 2015
Shuang Niu, Kim J.R. Rasmussen and Feng Fan, “Local-global interaction buckling of stainless steel I-beams. II: Numerical study and design”, ASCE Journal of Structural Engineering, Vol. 141, No. 8, August 2015
Jialu Ma, Feng Fan, Chengqing Wu and Xudong Zhi, “Counter-intuitive collapse of single-layer reticulated domes subject to interior blast loading”, Thin-Walled Structures, Vol. 96, pp 130-138, November 2015
Jiachuan Yan, Feng Qin, Zhenggang Cao, Feng Fan and Y.L. Mo, “Mechanism of coupled instability of single-layer reticulated domes”, Engineering Structures, Vol. 114, pp 158-170, May 2016
Gengbo Chen, Hao Zhang, Kim J.R. Rasmussen and Feng Fan, “Modeling geometric imperfections for reticulated shell structures using random field theory”, Engineering Structures, Vol. 126, pp 481-489, November 2016
Zhenggang Cao, Zongshuai Wan, Ying Sun and Feng Fan, “Numerical simulation study on structural behavior of Tensairity domes with annular airbags”, Thin-Walled Structures, Vol. 117, pp 155-164, August 2017
Qingwen Zhang, Yu Zhang, Li Yao, Feng Fan and Shizhao Shen, “Finite element analysis of the static properties and stability of a 800 m Kiewitt type mega-latticed structure”, Journal of Constructional Steel Research, Vol. 137, pp 201-210, October 2017
D.Z. Wang, X.D. Zhi, F. Fan and L. Lin, “The energy-based failure mechanism of reticulated domes subjected to impact”, Thin-Walled Structures, Vol. 119, pp 356-370, October 2017
Huihuan Ma, Zhiwei Shan and Feng Fan, “Dynamic behaviour and seismic design method of a single-layer reticulated shell with semi-rigid joints”, Thin-Walled Structures, Vol. 119, pp 544-557, October 2017
Rong Zhang, Xu-dong Zhi and Feng Fan, “Plastic behavior of circular steel tubes subjected to low-velocity transverse impact”, International Journal of Impact Engineering, Vol. 114, pp 1-19, April 2018
Jie Zhong, Junping Zhang, Xudong Zhi and Feng Fan, “Identification of dominant modes of single-layer reticulated shells under seismic excitations”, Thin-Walled Structures, Vol. 127, pp 676-687, June 2018