

Dr Jian Yang BEng, MEng, PhD., MCS

Lecturer in Structural Engineering

[School of Civil Engineering \(/schools/civil-engineering/index.aspx\)](/schools/civil-engineering/index.aspx)

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About

Jian (Jimmy) Yang is a lecturer in Structural Engineering in the School of Civil Engineering. He is the Course Convenor for the MSc programme in Civil Engineering. Jimmy has published over 30 research papers in scientific journals as well as peer-reviewed conference proceedings in the fields of Fibre Reinforced Polymer (FRP), light gauge steel, glass, recycled materials and structural insulated panels (SIPs) in the structural use. He has received three EPSRC CASE student awards and completed a number of industry funded research projects.

Jimmy is an active researcher with a great interest in green materials used in structural engineering. He keeps close links with industries where his researches are concerned with. He delivers lectures and supervises design and research projects at postgraduate and undergraduate levels on topics associated with structures and structural materials.

Qualifications

- PhD in Structural Engineering
- MEng in Structural Engineering
- BEng in Civil Engineering
- Member of the Concrete Society

Biography

Dr Yang graduated from Shanghai Jiao Tong University China with a BEng in Civil Engineering and an MEng in Structural Engineering. Prior to commencing his PhD degree programme in 2001 at the University of Leeds, he worked as a Research Assistant in the Hong Kong Polytechnic University.

Following the completion of his doctorate, he worked as a structural engineer in the Centre for Window and Cladding Technology (CWCT), University of Bath. He then joined the University of Birmingham in 2005 as a lecture in structural engineering. Dr Yang has shown constant interests in structural engineering including a wide spectrum of materials, in particular, structural applications of sustainable construction materials.

At the University of Birmingham he teaches a number of structures modules and supervises the MEng interdisciplinary design project and final year research projects. He has received research grant funding from EPSRC, IStructE and Royal Academy engineering and undertaken industrial funded research contracts.

Teaching

BEng and MEng programmes in Civil Engineering

- Structural Engineering (CE2STE)
- Structural Engineering and Design (CE3SED)
- Advanced Structures and Materials (CE5SMb)
- Construction Design Project (CE2CDS)
- MEng Interdisciplinary Design Project
- MEng Final Year Research Project

Postgraduate supervision

Jimmy is interested in supervising doctoral researchers in the area of structural use of sustainable construction materials, e.g.,

- Analysis and design of light gauge steel members and structures
- Characterisation and design of structural insulated panels (SIPs)
- Structural use of glass – impact resistance and post-breakage strength
- Performance and failure analysis of insulated glazing units
- Robustness of precast concrete cross wall constructions

A CASE studentship is available in researching and developing a novel type of vacuum insulated panels (VIPs). Please contact Jimmy on the contact details above.

RESEARCH THEMES

- Sustainable materials used in structural engineering
- Robustness of new emerging structures
- Numerical modelling by using conventional and new numerical methods such as FEM, combined FEM/DEM, XFEM

RESEARCH ACTIVITY

- Light gauge steel members and structures (EPSRC/Albion Section)
- Pseudo-plastic design of cold-formed steel beams with continuous and sleeved connections
- Design of cold-formed steel purlins considering the purlin-sheeting interaction
- Structural insulated panels (SIPs) (EPSRC/Ergohome)
- Development of a sustainable housing using SIPs
- Recycled aggregate (Industry funded)
- Investigation into the properties of concrete including recycled concrete aggregate and crushed clay
- Structural use of glass
- Damage analysis of laminated glass under impact actions (PhD project funded by UoB)
- Post-breakage strength of laminated glass in structural use
- Use of FRP in structural engineering
- Modelling of interfacial stresses of RC beams strengthened with FRP sheets
- Predictions of deboning failure
- Insulated glazing units
- Performance and failure analysis of insulated glazing units under complex environmental actions (PhD project funded by UoB)
- Development of novel insulated glazing units (International joint project with China Building Materials Academy)
- Robustness Precast concrete cross wall constructions (industry funded)
- Bond behaviour of tie bars
- Ductility of wall-slab joints

Other activities

MEMBERSHIP OF PROFESSIONAL BODIES

- Member of the Concrete Society (MCS)
- Member of IIFC
- Member of IABSE
- Member of the Society of Glass Technology

MEMBERSHIP OF COMMITTEES

- Member of International Commission on Glass Technical Committee ICG/TG06 – Mechanical Properties of Glass
- Member of Concrete Society Midlands Region Committee
- Member of IStructE Midland Counties Branch Committee
- Member of UKSIPs technical Committee
- Guest professor of National Key Laboratory of Green Building Materials in China Building Materials Academy

Publications

1. Liu, Q. Yang, J. Chan A. H. and Li. L-Y. (2011) Numerical analysis of post-failure behaviour of multi-span cold-formed steel beams. Thin Walled Structures. (Accepted)
2. Yang, J. Li, Z. and Du. Q. (2011) An experimental study on material and structural properties of structural insulated panels (SIPs). Advanced Materials Research, (in press)
3. Du, Q. Yang, J. and Ledbetter, S. (2011) Communication in the cladding supply chain. Advanced Materials Research 255-260, 3898-3902
4. Du, Q. Yang, J. and Zhou, T-H. (2011) Decision making on glass selection in building Façades. Advanced Materials Research 250-253, 2792-2795
5. Liu, Q., Yang, J. and Li L-Y. (2011) Pseudo-plastic moment resistance of continuous beams with cold-formed Sigma Sections at Internal Supports: An experimental study. Engineering Structures 33, 3, 947-957
6. Yang, J., Du, Q, Bao, Y.W. (2011). Concrete with recycled concrete aggregate and crushed clay bricks. Construction and Building Materials 25, 4, 1935-1945
7. Yang, J. Du, Q. and Bao, Y. W. (2011). Bond behaviour of concrete block including steel mesh of various rib pattern and bar size. Advanced Materials Research 177, 562-565
8. Yang, J. and Ye, J. (2010). An improved closed-form solution to interfacial stresses in plated beams using a two-stage approach. International Journal of Mechanical Sciences 52, 1, 13-30
9. Yang, J. Chen, J.F. Teng., J.G. (2009). Interfacial stress analysis of plated beams under symmetric mechanical and thermal loading. Construction and Building Materials 23, 9, 2973-2987
10. Y. Bao, J. Yang. (2009). Space and time effect of stress on cracking of glass. Materials Science and Engineering A – Structural materials properties, Microstructure and Processing 512, 1-2, 45-52
11. Yang, J., Ye, J. and Bao Y. (2008). Stress analysis of cross-ply composite laminates with transverse cracks. Mechanics of Composite Materials 44, 6, 557-580
12. Yang, J., Ye, J. Niu, Z. (2008). Simplified solutions for the stress transfer in concrete beams bonded with FRP plates. Engineering Structures 30, 2, 533-545
13. Yang, J., Ye, J. Niu, Z. (2007). Interfacial shear stress in FRP-plated RC beams under symmetric loads, Cement & Concrete Composites 29, 2, 421-432
14. J. Yang and J. Ye. (2005). Bending, buckling and vibration of plates strengthened with bonded composite sheets. World Journal of Engineering 2(2) 33-42, 2005
15. Yang, J., Teng, J.G. and Chen, J.F. (2004). Interfacial stresses in soffit-plated reinforced concrete beams. Proceedings of the Institution of Civil Engineers - Structures and Buildings, 157 (1): 77-89
16. Shen, H.S., Chen, Y. and Yang, J. (2003). Bending and vibration characteristics of a strengthened plate under various boundary conditions. Engineering Structures, 25(9): 1157-1168
17. Yang, J. and Ye, J.Q. (2002). Interfacial stresses in plated beams with cracks. Composite Structures. 57 (1-4): 125-134
18. Yang J. and Ye J.Q. (2002). Dynamic elastic local buckling of piles under impact loads. Structural Engineering and Mechanics. 13(5), 543-556

19. Shen, H.S., Teng J.G. and Yang J., (2001). Interfacial Stresses and Slabs Bonded with Thin Plate. *Journal of Engineering Mechanics*, ASCE, 127(4), 399-406
20. Zhang, L. Shen, H.S. and Yang, J. (2001). Flow-induced vibrations of shear-deformable laminated plates exposed to an oscillating flow. *Journal of Sound and Vibration*, 245(1), 29-44
21. Shen, H.S., Yang, J. and Zhang, L. (2001). Free and forced vibration of Reissner-Mindlin plates with free edges resting on elastic foundations. *Journal of Sound and Vibration*, 244(2), 299-320
22. Shen, H.S., Yang, J. and Zhang, L. (2000). Dynamic response of Reissner-Mindlin plates under thermomechanical loading and resting on elastic foundations. *Journal of Sound and Vibration*, 232(2), 309-329
23. Yang, J., Liu, Q. An experimental study of cold-formed steel sigma sections with sleeve connections. ICTWS 2011, The 6th International Conference on Thin Walled Structures, 5th -7th, September, 2011, Timisoara, Romania
24. Yang, J. Zhen L. and Du Q. An experimental study on material and structural properties of structural insulated panels (SIPs). International Conference on Civil Engineering and Building Materials (CEBM), 29th -31st July, 2011, Kungming, China
25. Yang, J. Sun, Y. Structural behaviour of composite cladding panels. 19th Annual International Conference on Composite/Nano Engineering (ICCE-19), 24th -30th July, 2011, Shanghai, China
26. Yang, J. Liu, Q. Pseudo-plastic design of continuous beams with cold-formed sigma sections. *Advances in Steel and Aluminium Structures*. Ed. By Lau Hieng Ho. ISBN: 978-981-08-9247-0. 2011
27. Liu, Q. Yang, J. Li, L. Y. Numerical analysis of cold-formed sigma steel beams, 199-204. *Discrete Element Methods, Simulations of Discontinua: Theory and Application*. Ed. By Antonio Munjiza. ISBN: 978-0-9551179-8-5. 2010
28. Chen Xudong, Chan Andrew HC and J. Yang. A case study of impact on glass using the combined Finite-Discrete Element method. *Discrete Element Methods, Simulations of Discontinua: Theory and Application*. Ed. By Antonio Munjiza. ISBN: 978-0-9551179-8-5. 465-469. 2010
29. Liu, Q. Yang, J. Experimental study on post-buckling and post-failure behaviour of cold-formed Sigma continuous steel beams at internal supports. Sixth International Conference on Advances in Steel, ICASS'09. Dec. 2009
30. Tao Z. Yang, J. Numerical study of dynamic buckling of axisymmetrical cylindrical shell subjected to axial impact. Sixth International Conference on Advances in Steel, ICASS'09. Dec. 2009
31. Rungthongkit, P. Yang, J. Behaviour of structural insulated panels (SIPs) under both short-term and long-term loadings. 11th International Conference on Non-conventional Materials and Technologies Materials for Sustainable and Affordable Construction, University of Bath, Bath, UK, 6th-9th Sep. 2009. ISBN No. 9781861971784
32. Y. Bao, L. Liu, S. Hang and J. Yang. Design optimization and robustness of glass structure. *Glass for Processing Days*, Beijing, China, 8-9 April, 2008
33. Y. Bao, D. Wan, and J. Yang. Robustness of building ceramics and glass. 2nd International Congress on Ceramics, Verona, Italy, 29 June – 4July, 2008
34. Yang, J. Impact resistance of structural glass. *Proceedings of International Conference on Building Envelope Systems and Technology 2007*, Bath, UK, March, 2007, Bath, 75-86. ISBN No. 9781874003441
35. Yang, J, Ye, J. A layer-wiser Fourier expansion approach for stress transfer in cross-ply laminates with transverse matrix cracks. *Proceedings of Sixteenth International Conference on Composite Materials*, Kyoto, Japan, July, 2007, Kyoto, 740-741, ISBN No. 9784931136069
36. Yang, J. and Ye, J. Closed-form rigorous solution for the interfacial stress in plated beams using a two-stage method. *Proceedings of the International Symposium on Bond Behavior of FRP in Structures*, Hong Kong China, 7-9 December 2005, 175-182. ISBN No. 962-367-506-2
37. Ye, J. and Yang, J. An investigation on the stress transfer in concrete beams bonded with FRP Plates. *Proceedings of the International Symposium on Bond Behavior of FRP in Structures*, Hong Kong China, 7-9 December 2005, 183-188. ISBN No. 962-367-506-2
38. Yang, J., Chen, J.F. and Teng, J.G. A new approach for interfacial stress analysis of beams bonded with a thin plate. *Proceedings of 2nd International Conference on FRP Composites in Civil Engineering*, Adelaide, Australia, 8-10 December 2004, 413-421. ISBN No. 9058096386
39. Yang, J., Chen, J.F. and Teng, J.G. Interfacial Stresses in Plated RC Beams under Arbitrary Symmetric Loads: a High-Order Closed-Form Solution. In: *Proceedings of Advanced Polymer Composites for Structural Applications in Construction*, Southampton, 2002. ISBN No. 072773122X
40. Su, Wenlan and Yang J. Nonlinear bending and postbuckling analysis of cantilever plates. *Journal of Shanghai Jiaotong University*, 2001
41. Zhang, L., Shen, Hui-shen; Yang, J. Dynamic response of composite laminated plates induced by oscillating flow. *Journal of Shanghai Jiaotong University*, 2000, 34(8), 1083-1086
42. Yang, J., Shen, Hui-shen and Su, Wenlan. Bending, buckling and vibration of reinforced concrete slabs bonded with thin steel plates. *Journal of Shanghai Jiaotong University*, 2000, 34(8), 1069-1073
43. Yang, J., Hui-shen Shen and L. Zhang. Buckling Loads for Bridge Piles. *Journal of Shanghai Jiaotong University*, 2000, 34(4), 521-526

