Dr Jian Yang BEng, MEng, PhD., MCS

Lecturer in Structural Engineering

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

Contact details

Telephone +44 (0) 121 414 5149 (tel:+44 121 414 5149)

Fax +44 (0) 121 414 3675

Email j.yang.3@bham.ac.uk (mailto:j.yang.3@bham.ac.uk)

School of Civil Engineering
University of Birmingham
Edgbaston
Birmingham
B15 2TT
UK

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

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)
- Psudo-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)
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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
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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 in Beams 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
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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
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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
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