

CURRICULUM VITAE

GENERAL

Surname: Hu

Given Name: Biao

Date of Birth: Feb., 1988

Place of Birth: Wuhan, Hubei Province, PR China

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ACADEMIC QUALIFICATIONS

PhD, City University of Hong Kong, Hong Kong SAR, 2017

MEng, Huazhong University of Science & Technology, China, 2014

BSc, Wuhan Institute of Technology, China, 2011

RESEARCH INTEREST

Composites Materials and Structures

Durability

Sustainable Construction Materials

Recycling Materials and Technology

Functional Materials and Structures

Structural Intervention Techniques

ACADEMIC APPOINTMENTS

Sep. 2021 – Present, Assistant Professor, Shenzhen University, Shenzhen, China

Feb. 2018 – Sep. 2021, Associate Research Fellow, Shenzhen University, Shenzhen, China

Sep. 2017 – Dec. 2017, Research Associate, City University of Hong Kong-SRI, China

COMPETITIVE RESEARCH GRANT RECORDS

- Anti-corrosion mechanism and seismic performance of CFRP spiral stirrups reinforced concrete columns with cathodic protection, funded by NSFC, RMB 500,000, PI, Jan. 2024-Dec. 2027.
- An investigation of the corrosion protection mechanism and mechanical performance of CFRP transversely reinforced concrete beams with impressed current cathodic protection function embedded, funded by NSFC, RMB 240,000, PI, Jan. 2021-Dec. 2023.
- Investigations of shear performance and rapid rehabilitation mechanism of coastal RC beams with corroded stirrups under fatigue loading, funded by NSFG, RMB 100,000, PI, Jan. 2021-Dec. 2023.
- Development of sea water sea-sand recycled concrete material through physical modification and nanotechnology, funded Open Fund of State Key Laboratory of Coastal and Offshore Engineering, Dalian University of Technology, RMB 40, 000, PI, June 2021- May 2023.
- Study on the development of the high-performance solid-waste-based geopolymer seawater and sea sand concrete and its intelligent self-protection structural system, funded by NSFC, RMB 2,600,000, Co-I, Jan. 2021-Dec. 2024.
- A new generation of green energy-saving materials and structures, funded by NKRD International Cooperation Program, RMB 2,660,000, Co-I, Feb. 2020-Feb. 2023.
- New approach to shear resistance of reinforced concrete members, funded by UGC scholarship, \$HKD 548,400, PI, Sep. 2014-Sep. 2017.
- Mechanical behavior and failure mechanism of welded steel tubular joint exposure to fire, funded by NSFC, RMB 800,000, Co-I, Jan. 2014-Dec. 2017.
- Stress-strain behavior and mechanism study of LRS-FRP confined concrete under varying loading rate of cyclic loading, funded by NSFC, RMB 250,000, Co-I, Jan. 2019-Dec. 2021.
- Study of performance and design method of LRS-FRP flexural-strengthened RC beams subjected to impact loading, funded by NSFC, RMB 240,000, Co-I, Jan. 2019-Dec. 2021.
- Development and application of special coupling model for foundation uplift, funded by NSFC, RMB 250,000, Co-I, Jan. 2014-Dec. 2016.

Note: **NSFC**: National Natural Science Foundation of China; **NKRD**: National Key Research and Development Program; **UGC**: The University Grants Committee of the Hong Kong SAR; **PI**: Principal Investigator (first named chief investigator); **Co-I**: Co-Investigator (partner investigator).

ADVISING AND TEACHING EXPERIENCE

- **Teaching Assistant** of a course of Construction Materials (CA2674) at Department of Architecture and Civil Engineering, City University of Hong Kong, Sep. 2015–Aug. 2017.
- **Project Tutor** of 4 undergraduate students for their Final Year Projects (FYP) at City Univ. of Hong Kong, Hong Kong SAR, Sep. 2014–Sep. 2017.

SELECTED PRIZES AND AWARDS

- **Moisseiff Award, American Society of Civil Engineers (ASCE), 2018**
- **IAAM Scientist Medal, International Association of Advanced Materials (IAAM)**
- **Junior Fellow of IAAM (International Association of Advanced Materials)**
- Second prize of Science and Technology Progress of Guangdong Province, China
- Outstanding Reviewer, 2017, Thin-Walled Structures
- Outstanding Academic Performance Award, City University of Hong Kong, 2016
- National Scholarship for Postgraduate Student, Ministry of Education of The People's Republic of China, 2013
- Hubei Provincial Government Scholarship, Wuhan Institute of Technology, 2008

PROFESSIONAL SERVICES

Leading Guest Editor, *Polymers* (IF 5.0)

Leading Guest Editor, *Materials* (IF 3.4)

Leading Guest Editor, *Frontiers in Materials* (3.2)

Guest Editor, *Discover Sustainability* (2.6)

Topical Advisory Panel Member, *Materials* (IF 3.623)

Editorial Board Member, *Clean Technologies & Recycling*

Editorial Board Member, *Journal of Civil, Construction and Environmental Engineering*

Editorial Board Member, *Journal of Civil Engineering and Construction*

Editorial Board Member, *Engineering Science*

Editorial Board Member, *Journal of Computer Methods in Civil Engineering*

Editor Board Member, *Building Technology Research* (a Chinese journal)

Editor Board Member, *Construction Progress* (a Chinese journal)

Reviewer Editor, *Frontiers in Material* (IF 3.515)

MEMBERSHIPS AND AFFILIATIONS

Fellow (Junior), International Association of Advanced Materials (IAAM)

Member, International Institute for FRP in Construction (IIFC)

Associate Member, American Society of Civil Engineers (ASCE)

REVIEWED SCI JOURNALS

Journal of Structural Engineering, <i>ASCE</i>	International Journal of Geomechanics, <i>ASCE</i>
Journal of Cold Regions Engineering, <i>ASCE</i>	Engineering Structures, <i>Elsevier</i>
International Journal of Mechanical Sciences, <i>Elsevier</i>	Materials and Structures, <i>Springer</i>
Thin-Walled Structures, <i>Elsevier</i>	Fire Safety Journal, <i>Elsevier</i>
Construction and Building Materials, <i>Elsevier</i>	Journal of Ocean Engineering and Science, <i>Elsevier</i>
Case Studies in Construction Materials, <i>Elsevier</i>	Results in Engineering, <i>Elsevier</i>
Journal of Cleaner Production, <i>Elsevier</i>	Forces in Mechanics, <i>Elsevier</i>
Ocean Engineering, <i>Elsevier</i>	Modelling and Simulation in Engineering
Journal of Asian Architecture & Building Engineering	Polymers
Nanotechnology Reviews	Reviews on Advanced Materials Science
Advances in Structural Engineering	Advances in Concrete Construction, an Int'l Journal
Applied Ocean Research	Indian Journal of Engineering and Materials Sciences
Frontiers in Materials	Frontiers in Earth Science
Sensors	Heliyon
Buildings	Fibers
Journal of Renewable Materials	Materialia
Molecules	Metals
Journal of Civil Engineering and Construction	SN Applied Science,
Cogent Engineering	Journal of the Mechanical Behavior of Materials
Advances in Civil Engineering	Energies
Crystals	Shock and Vibration
Sustainability	Structural Engineering and Mechanics, an Int'l Journal
Actuators	Designs
Materials	

PUBLICATIONS

Refereed Journal Papers (SCI Indexed)

1. **Hu B**, Weng YT, Zhou YW*, Li WW, Huang XX, Guo MH. Overcoming the weakness of recycled GFRP aggregate concrete: FRP confining and its design method. *Construction and Building Materials*, under review.
2. **Hu B**, Wang XH, Zhou YW*, Huang XX, Zhu ZF. Seismic performance of shear-critical RC columns strengthened by multiple composites considering shifted failure zone. *Case Studies in Construction Materials*, under review.
3. Wu YF, Xiong QL, Munir MJ*, **Hu B***. Enhancing the microscopic structure of seawater sea-sand concrete through compression casting technique. *Construction and Building Materials*, under review.
4. Li WW, Li WY, Lu Y, **Hu B**, Wu HL, Yu J, Wang P*. Insights into ductile compressive behavior and failure mechanism of CFRP partially confined UHPC and UHPFRC. *Construction and Building Materials*, under review.
5. Wu YF*, Wang X, **Hu B**, Munir MJ*. Optimizing cement usage in concrete through compression casting technique. *Cement and Concrete Composites*, under review.
6. Zhou YW, Liao XW, Li LM, Guo MH*, **Hu B**. Using nonionic paraffin emulsion to make waterproof engineered cementitious composites: mechanical properties and hydrophobic performance. *Cement and Concrete Composites*, under review.
7. Huang X, Jiao Z, Xing F, Sui L, **Hu B**, Zhou Y*. (2024). Performance assessment of LC³ concrete structures considering life-cycle cost and environmental impacts. *Journal of Cleaner Production*, in press.
8. Li W, Wu M, **Hu B***, Wang P. (2024). Overcoming the brittleness of shear failure: A new FRP-RSC strengthening philosophy. *Composite Structures*, 330, 117857.
9. Wu T, Chen B, Chen Y, **Hu B**, Lin JP*. (2023). Identification of Dynamic Vibration Parameters of Partial Interaction Composite Beam Bridges Using Moving Vehicle. *Applied Sciences*, 13 (22), 12534.
10. Huang X, Zhou YW*, Li WW, **Hu B**, Zhang J. (2023). Reliability-Based Design of FRP Shear Strengthened Reinforced Concrete Beams: Guidelines Assessment and Calibration. *Composite Structures*, 323, 117421.
11. Zhou YW, Wang X, **Hu B**, Sui L, Yuan F*. (2023). Seismic Retrofit of Nonuniformly Corroded Coastal Bridge Piers with FRP and Engineered Cementitious Composite Overlays. *Journal of Composites for Construction*, 27(1), 04022088.

12. Zhou YW, Wang X, Yuan F, **Hu B**, Zhu Z*. (2023). Seismic retrofitting of coastal structural columns with steel bars locally corroded to fracture using sprayed ECC overlays and FRP jackets. *Composite Structures*, 307, 116670.
13. Huang X, Zhou YW*, Zheng X, Xing F, Sui L, **Hu B**. (2023). Bond performance between corroded steel bars and concrete with impressed current cathodic protection. *Composite Structures*, 309, 116739.
14. Zhou YW, Zhang R, Zhu R, Guan Z, Xing F, Guo M*, **Hu B**. (2023). Experimental and numerical investigation on the microstructure and failure characteristics of concrete using strengthened recycled coarse aggregate. *Journal of Building Engineering*, 66, 105880.
15. Yuan F, Wu YF*, **Hu B**. (2023). Effect of compressive reinforcement on shear strength of RC beams. *Journal of Structural Engineering*, ASCE, 149 (1), 04022228.
16. Huang X, Zhou YW*, Zheng X, Lan Y, Xing F, Sui L, **Hu B**, Li S. (2022). Behavior and modeling of hybrid CFRP/steel reinforced concrete beams with cathodic protection in marine environment. *Journal of Composites for Construction*, ASCE, 26(6), 04022079.
17. Zhou YW, Wang X, **Hu B**, Sui L, Yuan F*. (2023). Seismic Retrofit of non-uniformly Corroded Coastal Bridge Piers with FRP and Engineered Cementitious Composite Overlays. *Journal of Composites for Construction*, ASCE, 27(1), 04022088.
18. Zhou Q, Zhou YW, Guan Z, Xing F, Guo M*, **Hu B**. (2022). Mechanical Performance and Constitutive Model Analysis of Concrete Using PE Fiber-Strengthened Recycled Coarse Aggregate. *Polymers*, 14 (19), 3964.
19. Hu Z, Zhou YW, **Hu B***, Huang X, Guo M. (2022). Local use of ECC to simultaneously enhance the shear strength and deformability of RC beams. *Construction and Building Materials*, 353, 129085.
20. Guo M, Gong G, Yue Y, Xing F, Zhou YW*, **Hu B**. (2022). Performance evaluation of recycled aggregate concrete incorporating limestone calcined clay cement (LC³). *Journal of Cleaner Production*, 366: 132820.
21. Zhu Z, Zhou YW*, Li Z, Li H, **Hu B**, Li P. (2022). A versatile continuous model for predicting various post-peak patterns of FRP-confined concrete. *Composite Structures*, 14: 115750.
22. Zhou YW, Zhuang L, Hu Z, **Hu B***, Huang X, Li S, Guo M, Zhu Z. (2022). Perforated steel block of realizing large ductility under compression: Parametric study and stress-strain modeling. *Reviews on Advanced Materials Science*; 61(1): 221-237.

23. Zhou YW, Zhuang L, Hu Z, **Hu B**^{*}, Huang X, Zhu Z. (2022). Perforated steel for realizing extraordinary ductility under compression: Testing and finite element modeling. *Reviews on Advanced Materials Science*; 61(1): 195-207.
24. Gong G, Guo M, Zhou YW^{*}, Zheng S, **Hu B**, Zhu Z, Huang Z. (2022). Multiscale Investigation on the Performance of Engineered Cementitious Composites Incorporating PE Fiber and Limestone Calcined Clay Cement (LC³). *Polymers*; 14: 1291.
25. Zhou YW, Weng Y, Li L, **Hu B**^{*}, Huang X, Zhu Z. (2022). Recycled GFRP Aggregate Concrete Considering Aggregate Grading: Compressive Behavior and Stress–Strain Modeling. *Polymers*; 14(3): 581
26. Liang Z, Hu Z, Zhou Y, Wu Y, Zhou X, **Hu B**^{*}, Guo M. (2022). Improving recycled aggregate concrete by compression casting and nano-silica. *Nanotechnology Reviews*; 11(1): 1273-1290.
27. Huang X, Bei Y, Sui L, Li L, **Hu B**, Zhou Y^{*}. (2022). Reliability assessment on maximum crack width of concrete beams reinforced with high-strength steel bars. *Journal of Building Engineering*; 45: 103564.
28. Chen C, Chen J, Zhou YW^{*}, Sui L, **Hu B**. (2021). Design of ductile H-anchorage for strengthening reinforced concrete beams with prestressed FRP. *Construction and Building Materials*; 307: 124883.
29. Zhou YW, Sui LL, Huang XX, Guo MH, Luo MS, **Hu B**^{*}, Chen C. (2021). Enhancing the EB-FRP strengthening effectiveness by incorporating a cracking-control layer of ECC with different thicknesses. *Construction and Building Materials*; 286: 122975.
30. Zhou YW, Gao H, Hu ZH, Qiu YD, Guo MH, Huang XX, **Hu B**^{*}. (2021). Ductile, durable, and reliable alternative to FRP bars for reinforcing seawater sea-sand recycled concrete beams: steel/FRP composite bars. *Construction and Building Materials*; 269: 121264.
31. Sui LL, Liu YL, Zhu ZF, **Hu B**, Chen C, Zhou YW^{*} (2021). Seismic performance of LRS-FRP–concrete–steel tubular double coupling beam. *Applied Sciences*; 11(5): 2024.
32. Hu ZH, Zhou XQ, Guo, MH, Huang XX, **Hu B**^{*}. (2020). Enhancing the performance of CFRP shear-strengthened RC beams using “ductile” devices. *Frontiers in Materials*; 7, 292.
33. Gao F, Tang ZQ, Mei SL, **Hu B**^{*}, Huang ST, Chen JB. (2020). Seismic behavior of exterior beam-column joints with high-performance steel rebar: Experimental and numerical investigations. *Advances in Structural Engineering*; 1369433220942870.

34. Gao F, Tang ZQ, **Hu B**^{*}, Chen JB, Zhu HP, Ma J. (2019). Investigation of the interior RC beam-column joints under monotonic anti-symmetrical load. *Frontiers of Structural and Civil Engineering*; 13, 1474-1494.
35. Wu YF, Zhou YW, **Hu B**, Huang XX, Smith ST^{*} (2020). Fused structures for safer and more economical constructions. *Frontiers of Structural and Civil Engineering*; 14(1): 1-9.
36. Zhou YW, Chen X, Wang XH, Sui LL, Huang XX, Guo MH, **Hu B**^{*} (2020). Seismic performance of large rupture strain FRP retrofitted RC columns with corroded steel reinforcement. *Engineering Structures*, 216: 110744.
37. Zhou YW, He WL, **Hu B**^{*}, Hu ZH. (2020). Performance of RC Precast Continuous Beams Incorporating New Strategy for Design and Allocating Connections. *International Journal of Structural Stability and Dynamics*; 20(06): 2040006.
38. Guo MH, Zhong QL, Zhou YW^{*}, **Hu B**, Huang ZY, Yue YC. (2020). Influence of flexural loading and chloride exposure on the fatigue behavior of high-performance lightweight engineered cementitious composites. *Construction and Building Materials*; 249, 118512.
39. Zhou YW, Zhang J, Li WW, **Hu B**, Huang XX^{*}. (2020). Reliability-based design analysis of FRP shear strengthened reinforced concrete beams considering different FRP configurations. *Composite Structures*, 237, 111957.
40. Xi B, Zhou YW, Yu KQ, **Hu B.**, Huang XX, Sui LL, Xing F^{*}. (2020). Use of nano-SiO₂ to develop a high performance green lightweight engineered cementitious composites containing fly ash cenospheres. *Journal of Cleaner Production*, 121274.
41. Yue YC, Zhou YW, Xing F, Gong GQ, **Hu B**, Guo MH^{*}. (2020). An industrial applicable method to improve the properties of recycled aggregate concrete by incorporating nano-silica and micro-CaCO₃. *Journal of Cleaner Production*, 120920.
42. Zhou YW, Zheng YW, Sui LL, **Hu B**, Huang XX^{*} (2020). Study on the Flexural Performance of Hybrid-Reinforced Concrete Beams with a New Cathodic Protection System Subjected to Corrosion. *Materials*, 13(1), 234.
43. Guo MH, **Hu B**, Xing F, Zhou XQ, Sun M, Sui LL, Zhou YW.^{*} (2020). Characterization of the mechanical properties of eco-friendly concrete made with untreated sea sand and seawater based on statistical analysis. *Construction and Building Materials*; 234, 117339.
44. **Hu B**, Zhou YW^{*}, Xing F, Sui LL, Luo MS. (2019). Experimental and theoretical investigation on the hybrid CFRP-ECC flexural strengthening of RC beams with corroded longitudinal reinforcement. *Engineering Structures*, 200, 109717.

45. Zhou YW, Guo MH, Sui LL, Xing F, **Hu B**^{*}, Huang ZY, Yun YC. (2019). Shear strength components of adjustable hybrid bonded CFRP shear-strengthened RC beams. *Composites Part B: Engineering*; 163: 36-51.
46. **Hu B**, Wu YF^{*}. (2018). Effect of shear span-to-depth ratio on shear strength components of RC beam. *Engineering Structures*; 168: 770-783.
47. Wu YF^{*}, **Hu B**. (2017). Shear strength components in reinforced concrete members. *Journal of Structural Engineering*, ASCE; 143(9): 04017092.
48. **Hu B**, Wu YF^{*}. (2017). Quantification of shear cracking in reinforced concrete beams. *Engineering Structures*; 147: 666-678.
49. Gao F, **Hu B**^{*}. (2015). Local joint flexibility of completely overlapped tubular joints under out-of-plane bending. *Journal of Constructional Steel Research*; 115: 121-130.
50. Gao F^{*}, **Hu B**, Zhu HP. (2014). Local joint flexibility of completely overlapped tubular joints under in-plane bending. *Journal of Constructional Steel Research*; 99: 1-9.
51. Gao F^{*}, **Hu B**, Zhu HP. (2013). Parametric equations to predict LJF of completely overlapped tubular joints under lap brace axial loading. *Journal of Constructional Steel Research*; 89: 284-292.

(Note: ^{*} denotes the corresponding author)

Refereed Conference Papers

52. Wu YF, Zhou YW, **Hu B**, Huang XX, Smith ST. Fused bridge structures under impact loading. *Proceedings of 16th East Asia-Pacific Conference on Structural Engineering & Construction (EASEC16)*. December 3-6, 2019, Brisbane, Australia.
53. Zhou YW, **Hu B**, Li PD, Xing F, Sui LL. Debonding prevention of CFRP strengthened beams: effects of ECC thickness and corrosion of flexural rebar. *Proceedings of 6th Asia-Pacific Conference on FRP in Structures (APFIS 2019)*. December 10-13, 2019, Gold Coast, Australia.
54. Wu YF^{*}, **Hu B**. Variation of shear strength components of RC beams. *Proceeding of the 25th Australasian Conference on Mechanics of Structures and Materials (ACMSM25)*, 4-7 December, Brisbane, Australia, 2018.
55. **Hu B**, Wang XW, Xing F, Sui LL, Li DW, Zhou YW. Shear behaviours of HB-FRP strengthened concrete beams. *Proceedings of 5th World Congress on Concrete Structures & Concrete Technology*, October 5-6, Los Angeles, USA, 2018.

56. **Hu B**, Wu YF. Isolation of shear strength components in reinforced concrete beams: An innovative experimental method. *Proceedings of the 6th Asia-Pacific Conference on FRP in Structures (APFIS 2017)*, 19-21 July, Singapore, 2017.
57. **Hu B**, Yeung TW, Wu YF. Experimental study on strain-softening behavior of FRP-confined square concrete columns. *Proceedings of the 2nd International Conference on Sustainable Urbanization (ICSU 2015)*, 7-9 January, Hong Kong, China, 2015.
58. Jiang C, Cao YG, **Hu B**, Wu, YF. Interfacial mechanical parameter identification of FRP bonded concrete. Proceeding of 9th PhD Student Workshop 2015 cum 10th Anniversary of USTC-CityU Joint PhD Collaboration Scheme, 6-7 June, Suzhou, China, 2015.
59. Gao F, **Hu B**. Parametric study on local joint flexibility of completely overlapped tubular joints under lap brace in-plane bending. *Proceeding of the 5th International Symposium on Innovation & Sustainability of Structures in Civil Engineering*, 6-7 July, Harbin, China, 2013.