

Ben Xu, Ph.D.

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(a) Education

Wuhan University	Thermal Sciences and Power Engineering	B.S., 2007
Chinese Academy of Sciences	Fluid Mechanics	M.S., 2010
The University of Arizona	Mechanical Engineering	Ph.D., 2015

(b) Professional Experiences

Assistant Professor, The University of Texas Rio Grande Valley	9/2016 - present
Postdoctoral Research Associate, Drexel University	9/2015 - 8/2016
Summer Research Internship, Robert Bosch LLC, NA/RTC	6/2014 - 9/2014
Research and Teaching Assistant, The University of Arizona	8/2010 - 8/2015

(c) Products (total published peer-reviewed journal articles = 16)

- 1) Chirino, H., **Xu, B.***, Xu, X. & Guo, P. (2017) Generalized diagrams of energy storage efficiency for latent heat thermal storage system in concentrated solar power plant. *Applied Thermal Engineering* (under review)
- 2) Dong, J., Xu, X., & **Xu, B.** (2017). CFD analysis of a novel modular manifold with multi-stage channels for uniform air distribution in a fuel cell stack. *Applied Thermal Engineering*. 124, 286-293.
- 3) **Xu, B.***, Li, Y., Xu, X., & Xu, X. (2017). Quantitative Evaluation of Passive Scalar Flow Mixing—A Review of Recent Developments. *ChemBioEng Reviews*. 4 (2), 120-140.
- 4) **Xu, B.**, Han, J., Kumar, A., Li, P., Yang, Y. (2017) Thermal storage using sand saturated by thermal-conductive fluid and comparison with the use of concrete. *Journal of Energy Storage*, 13, 85-95.
- 5) Xu, X., Shuai, K., & **Xu, B.** (2017). Review on Copper and Palladium Based Catalysts for Methanol Steam Reforming to Produce Hydrogen. *Catalysts*, 7(6), 183.
- 6) Xu, X., **Xu, B.**, Dong, J., & Liu, X. (2017). Near-term analysis of a roll-out strategy to introduce fuel cell vehicles and hydrogen stations in Shenzhen China. *Applied Energy*, 196, 229-237.
- 7) Xu, X., Liu, X., & **Xu, B.** (2016). A survey of nickel-based catalysts and monolithic reformers of the onboard fuel reforming system for fuel cell APU applications. *International Journal of Energy Research*, 40(9), 1157-1177.
- 8) Dong, J., Xu, X., **Xu, B.**, & Zhang, S. (2016). Parametric analysis of a solid oxide fuel cell auxiliary power unit operating on syngas produced by autothermal reforming of hydrocarbon fuels. *Journal of Renewable and Sustainable Energy*, 8(2), 024301.
- 9) Xu, X., Vignarooban, K., **Xu, B.**, Hsu, K., & Kannan, A. M. (2016). Prospects and problems of concentrating solar power technologies for power generation in the desert regions. *Renewable and Sustainable Energy Reviews*, 53, 1106-1131.
- 10) **Xu, B.**, Li, P.W., Chan, C.L. (2015). Application of phase change materials for thermal energy storage in concentrated solar thermal power plants: a review to recent developments. *Applied Energy*, 160, 286-307.
- 11) **Xu, B.**, Li, P., & Chan, C. L. (2015). Energy storage start-up strategies for concentrated solar power plants with a dual-media thermal storage system. *ASME Journal of Solar Energy Engineering*, 137(5), 051002.
- 12) **Xu, B.**, Li, P., Waller, P., Huesemann, M. (2015). Evaluation of flow mixing in an ARID-HV algal raceway using statistics of temporal and spatial distribution of fluid particles. *Algal Research*, 9, 27-39.

- 13) **Xu, B.**, Li, P.W., Chan, C.L., Tumilowicz, E. (2015). General volume sizing strategy for thermal storage system using phase change material for concentrated solar thermal power plant. *Applied Energy*, 140, 256-268. DOI: 10.1016/j.apenergy.2014.11.046
- 14) Tumilowicz, E., Chan, C. L., Li, P.W., **Xu, B.** (2014). An enthalpy formulation for thermocline with encapsulated PCM thermal storage and benchmark solution using the method of characteristics. *International Journal of Heat and Mass Transfer*, 79, 362-377.
- 15) Li, P., **Xu, B.**, Han, J., Yang, Y. (2014). Verification of a model of thermal storage incorporated with an extended lumped capacitance method for various solid–fluid structural combinations. *Solar energy*, 105, 71-81. DOI: 10.1016/j.solener.2014.03.038
- 16) **Xu, B.**, Li, P., & Waller, P. (2014). Study of the flow mixing in a novel ARID raceway for algae production. *Renewable Energy*, 62, 249-257.
- 17) **Xu, B.**, Li, P. W., Chan, C. L. (2012). Extending the validity of lumped capacitance method for large Biot number in thermal storage application. *Solar Energy*, 86(6), 1709-1724.

(d) Synergistic Activities

- i. Research Grant Award and Research Projects
 - 1) UTRGV Engaged Scholar Award, PI (\$2,000, 2017)
 - 2) USDA-REAP, South Texas Energy Efficiency Project (STEEP), PI, Award number: 50-008-515960131 (\$99,041, 2017)
- ii. Proposal Review Panel
EPA National Priorities Oil and Gas Development in the Appalachian Basin, 2/2017
- iii. Conference Session Organizer
 - 1) Session chair: Advanced Technologies Solar II, Small Power Systems and Presentations, Biofuels, Hydrogen, Syngas, and Alternate Fuels, Hydro/Ocean Power - II, ASME Power & Energy Conference & Exhibition 2017, June 26-30, 2017, Charlotte, NC, USA.
 - 2) Session chair: Heat Transfer Fluid and Storage II. ASME 8th International Conference on Energy Sustainability, June 30 – July 2, 2014, Boston, MA, USA
 - 3) Session co-chair: Solar Thermochemistry and Solar Concentration; Heat Transfer Fluids and Storage I; Geothermal and Ocean Energy I. ASME 8th International Conference on Energy Sustainability, June 30 – July 2, 2014, Boston, MA, USA
- iv. Journal Reviewer
Applied Energy; Energy; Renewable Energy; Solar Energy; Energy Conversion and Management; Applied Thermal Engineering; ASME Journal of Solar Energy Engineering; ASME Journal of Energy Resources Technology; Journal of Energy Engineering; International Journal of Energy and Environmental Engineering.
- v. Editorial Board
Lead Guest Editor, “Innovative Applications of Advanced Solar Thermal Technologies Using Phase Change Materials”, Special Issue on International Journal of Photoenergy.
Guest Editor, “Solar Energy Technologies and Applications”, Special Issue on Journal of Renewable Energy
- vi. Invited Speaker
Guest Speaker, “Effects of internal circulation and particle mobility during nanofluid droplet evaporation”, 2016 Fall Visiting Scholars, Faculty and Students Workshop on Mathematics and Their Applications in related fields. (November 19, 2016).

(e) Award and honors

- 1) UTRGV Faculty Travel Award, \$500 (2017)
- 2) Outstanding Reviewer for Applied Thermal Engineering (2016), Energy (2015), Renewable Energy (2015)