

Prakash Bhoi

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Professional Preparation

PhD, Biosystems Engineering, Oklahoma State University	May 2014
MS, Mechanical Engineering, S.V. National Institute of Technology	Oct 2005
BS, Mechanical Engineering, Sardar Patel University	Aug 1999

Appointments

Assistant Professor	Georgia Southern University, Statesboro, GA	2017 to present
Postdoctoral Fellow	Oklahoma State University, Stillwater, OK	2014 to 2017
Research Engineer	Oklahoma State University, Stillwater, OK	2009 to 2014
Assistant Manager	L&T Sargent and Lundy Ltd, Vadodara India	2008 to 2009
Senior Design Engineer	L&T Sargent and Lundy Ltd, Vadodara India	2006 to 2007
Scientific Officer	Sardar Patel Renewable Energy Research Inst., India	2006 to 2006
Research Scientist	Sardar Patel Renewable Energy Research Inst., India	2005 to 2006
Scientific Assistant	Sardar Patel Renewable Energy Research Inst., India	2000 to 2005
Apprentice Engineer	Eimco Elecon (I) Private Limited, India	1999 to 2000

Publications

1. **Bhoi, P. R.***, Huhnke, R. L., Kumar, A., Indrawan, N., & Thapa, S. (2018). Co-gasification of Municipal Solid Waste and Biomass in a Commercial Scale Downdraft Gasifier. *Energy*, 163, 513-518. (Impact factor: 4.968).
2. Indrawan, N., Thapa, S., **Bhoi, P. R.**, Huhnke, R. L., & Kumar, A. (2018). Electricity power generation from co-gasification of municipal solid wastes and biomass: Generation and emission performance. *Energy*, 162, 764-775. (Impact factor: 4.968).
3. **Bhoi, P. R.***, Huhnke, R. L., Kumar, A., Thapa, S., & Indrawan, N. (2018). Scale-up of a downdraft gasifier system for commercial scale mobile power generation. *Renewable Energy*, 118, 25-33.
4. Thapa, S.*, Indrawan, N., & **Bhoi, P. R.** (2018). An overview on fuel properties and prospects of Jatropha biodiesel as fuel for engines. *Environmental Technology & Innovation*. 9, 210-219.
5. Indrawan, N., Thapa, S., **Bhoi, P. R.**, Huhnke, R. L., & Kumar, A.* (2017). Engine power generation and emission performance of syngas generated from low-density biomass. *Energy Conversion and Management*, 148, 593-603.
6. Thapa, S., **Bhoi, P. R.**, Kumar, A.*, & Huhnke, R. L. (2017). Effects of Syngas Cooling and Biomass Filter Medium on Tar Removal. *Energies*, 10(3), 349.

7. **Bhoi, P. R.**, Huhnke, R. L.*, Kumar, A., Payton, M. E., Patil, K. N., & Whiteley, J. R. (2015). Vegetable oil as a solvent for removing producer gas tar compounds. *Fuel Processing Technology*, 133, 97-104.
8. **Bhoi, P. R.**, Huhnke, R. L.*, Kumar, A., Patil, K. N., & Whiteley, J. R. (2015). Design and development of a bench scale vegetable oil based wet packed bed scrubbing system for removing producer gas tar compounds. *Fuel Processing Technology*, 134, 243-250.
9. **Bhoi, P. R.**, Huhnke, R. L., Singarapu, K., Kumar, A., & Payton, M. E. (2015). Solubility enhancement of producer gas tar compounds in water using sodium dodecyl sulfate as a surfactant. *Fuel Processing Technology*, 133, 75-79.
10. **Bhoi, P. R.**, Huhnke, R. L.*, Whiteley, J. R., Gebreyohannes, S., & Kumar, A. (2015). Equilibrium stage based model of a vegetable oil based wet packed bed scrubbing system for removing producer gas tar compounds. *Separation and Purification Technology*, 142, 196-202.
11. Patil, K.*, **Bhoi, P.**, Huhnke, R., & Bellmer, D. (2011). Biomass downdraft gasifier with internal cyclonic combustion chamber: Design, construction, and experimental results. *Bioresource Technology*, 102(10), 6286-6290.
12. Pathak, B. S., Patel, S. R., Bhave, A. G., **Bhoi, P. R.**, Sharma, A. M., & Shah, N. P. (2008). Performance evaluation of an agricultural residue-based modular throat-type down-draft gasifier for thermal application. *Biomass and bioenergy*, 32(1), 72-77.
13. **Bhoi, P. R.***, & Channiwala, S. A. (2009). Emission characteristics and axial flame temperature distribution of producer gas fired premixed burner. *Biomass and Bioenergy*, 33(3), 469-477.
14. **Bhoi, P. R.***, & Channiwala, S. A. (2008). Optimization of producer gas fired premixed burner. *Renewable Energy*, 33(6), 1209-1219.
15. Pathak, B. S., Kapatel, D. V., **Bhoi, P. R.***, Sharma, A. M., & Vyas, D. K. (2007). Design and development of sand bed filter for upgrading producer gas to IC engine quality fuel. *International Energy Journal*, 8(1).
16. Singh, R. N., **Bhoi, P. R.**, & Patel, S. R. (2007). Modification of commercial briquetting machine to produce 35mm diameter briquettes suitable for gasification and combustion. *Renewable energy*, 32(3), 474-479.
17. **Bhoi, P. R.***, Singh, R. N., Sharma, A. M., & Patel, S. R. (2006). Performance evaluation of open core gasifier on multi-fuels. *Biomass and Bioenergy*, 30(6), 575-579.
18. Patel, S. R., **Bhoi, P. R.**, & Sharma, A. M. (2006). Field-testing of SPRERI's open core gasifier for thermal application. *Biomass and Bioenergy*, 30(6), 580-583.
19. Singh, R. N., Sharma, A. M., & **Bhoi, P. R.** (2006). Studies on storage and use of biomass briquettes in combustion and gasification reactor. *Journal of Agricultural Engineering*, 43(1), 61-65.

Conference oral/poster presentations with published Abstracts

1. Kumar, A., Indrawan, N., Thapa, S., **Bhoi, P.R.**, Huhnke, R. L. Mobile-scale Power Generation from MSW and Switchgrass: Gasification, Engine Power Generation and Engine Emissions Performance. Symposium on Thermal and Catalytic Sciences for Biofuels and Biobased Products. Auburn University, Auburn, Alabama 36849, October 8-10, 2018. Oral Presentation.
2. Indrawan, N., Kumar, A., **Bhoi, P.R.**, Huhnke, R. L. Power Generation from Co-Gasification of Municipal Solid Wastes and Biomass: Engine Power and Emission

- Performance. Annual International Meeting of ASABE, Detroit, Michigan 48226, July 29-Aug 1, 2018. Poster Presentation.
3. Indrawan, N., Thapa, S., **Bhoi, P.R.**, Kumar, A., & Huhnke, R. L. Mobile power generation from co-gasification of municipal solid waste (MSW) and switchgrass. Syngas Technologies Conference, Colorado Springs, Colorado, October 15-18, 2017. Poster Presentation.
 4. Thapa, S., Indrawan, N., **Bhoi, P.R.**, Kumar, A., Huhnke, R. L. Development of a low-cost syngas cleaning technology using heat exchanger and vegetable oil. Annual International Meeting of ASABE, Spokane, Washington, July 16-19, 2017. Poster Presentation.
 5. Indrawan, N., Thapa, S., **Bhoi, P.R.**, Kumar, A., Huhnke, R. L. Mobile power generation unit from co-gasification of municipal solid waste and biomass. Annual International Meeting of ASABE, Spokane, Washington, July 16-19, 2017. Poster Presentation.
 6. **Bhoi, P.R.**, Thapa, S., Indrawan, N., Kumar, A., Huhnke, R. L. Scale-up of a downdraft gasifier system for commercial scale mobile power generation. Oklahoma Section ASABE Meeting, Oklahoma State University, Stillwater, Oklahoma, February 24, 2017. Poster Presentation.
 7. Tshikesho, R., **Bhoi, P.R.**, Kumar, A., & Huhnke, R. L. Catalytic pyrolysis of municipal solid wastes (MSW) in a pyroprobe and a lab scale pyrolyzer. Annual International Meeting of ASABE, Orlando, Florida, July 17-20, 2016. Oral Presentation.
 8. **Bhoi, P.R.**, Kumar, A., Huhnke, R. L., Thapa, S., & Indrawan, N., Performance of a unique downdraft gasifier for a mobile power generation. Annual International Meeting of ASABE, Orlando, Florida, July 17-20, 2016. Oral Presentation.
 9. Indrawan, N., **Bhoi, P.R.**, Kumar, A., & Huhnke, R. L. The emission characteristics of a spark-ignited engine operated on syngas derived from biomass downdraft gasification. Annual International Meeting of ASABE, Orlando, Florida, July 17-20, 2016. Oral Presentation.
 10. Thapa, S., **Bhoi, P.R.**, Kumar, A., & Huhnke, R. L. Effectiveness of biomass and biochar filters to remove tars from syngas. Annual International Meeting of ASABE, Orlando, Florida, July 17-20, 2016. Oral Presentation.
 11. **Bhoi, P.R.**, Indrawan, N., Thapa, S., Kumar, A., & Huhnke, R. L. Development and Demonstration of a Mobile Power Generation Unit Using a Downdraft Gasifier. 50th Annual Convention of Indian Society of Agricultural Engineers (ISAE) & Symposium on Agricultural Engineering in Nation Building: Contributions and Challenges, College of Agricultural Engineering and Technology, Orissa University of Agricultural Engineering and Technology, Bhubaneswar, Odisha, India, January 19-21, 2016. Oral Presentation.
 12. Indrawan, N., Thapa, S., **Bhoi, P.R.**, Kumar, A., & Huhnke, R. L. Performance and emissions of a spark ignited engine operated on syngas derived from biomass downdraft gasifier. Gasification Technologies Conference, Colorado Springs, Colorado, October 11-14, 2015. Poster Presentation.
 13. **Bhoi, P. R.**, Kumar, A., & Huhnke, R. L. Comparative performance of internal combustion engine using biomass producer gas and natural gas as fuels. Annual International Meeting of ASABE, New Orleans, Louisiana, July 26-29, 2015. Oral Presentation.
 14. **Bhoi, P. R.**, Patil, K. N., Kumar, A., & Huhnke, R. L. Design, fabrication and evaluation of vegetable oil based wet scrubbing system for the removal of biomass producer gas

- tars. Annual International Meeting of ASABE, Montreal, QC Canada, July 13-16, 2014. Poster Presentation.
15. **Bhoi, P. R.**, Patil, K. N., Kumar, A., & Huhnke, R. L. Performance of vegetable oil based wet scrubbing system for the removal of producer gas tars. Annual International Meeting of ASABE, Montreal, QC Canada, July 13-16, 2014. Oral Presentation.
 16. **Bhoi, P. R.**, Patil, K. N., & Huhnke, R. L. Downdraft gasification performance of forage sorghum. Annual International Meeting of ASABE, Kansas City, Missouri, July 21 - 24, 2013. Oral Presentation.
 17. Patil, K. N., **Bhoi, P. R.**, & Huhnke, R. L. Simulation of natural gas co-firing with producer gas mixtures using Aspen Plus™. Annual International Meeting of ASABE, Kansas City, Missouri, July 21 - 24, 2013. Oral Presentation.
 18. **Bhoi, P. R.**, Patil, K. N., Kumar, A., & Huhnke, R. L. Equilibrium based process modeling of a packed bed scrubbing system for the removal of model tar compounds. Annual State Conference of Oklahoma EPSCoR, Stillwater, OK, April 23, 2013. Oral and Poster Presentation.
 19. **Bhoi, P. R.**, Patil, K. N., & Huhnke, R. L. Experimental determination of solubility of major biomass producer gas tar compounds in the selected organic solvents and bio oils. Annual International Meeting of ASABE, Dallas, Texas, July 29 - August 1, 2012. Oral Presentation.
 20. Patil, K. N., **Bhoi, P. R.**, & Huhnke, R. L. Downdraft gasification-based producer gas co-firing with natural gas in a laboratory air-swirled diffusion burner: Effects of co-firing rates and combustion air-to-fuel ratio. Annual International Meeting of ASABE, Dallas, Texas, July 29 - August 1, 2012. Oral Presentation.
 21. **Bhoi, P. R.**, Patil, K. N., Kumar, A., & Huhnke, R. L. Solubility of major producer gas tar compounds in water. Annual State Conference of Oklahoma EPSCoR, Stillwater, OK, April 10, 2012. Oral and Poster Presentation (3rd Place).
 22. Patil, K. N., **Bhoi, P. R.**, & Huhnke, R. L. Biomass-based model syngas co-firing with natural gas in a laboratory air-swirled burner: Effects of co-firing rates, combustion air-to-fuel ratios and burner port area on flame and exhaust characteristics. Sun Grant National Conference, October 2-5, 2012, New Orleans. Poster Presentation.
 23. **Bhoi, P. R.**, Patil, K. N., & Huhnke, R. L. Investigations on acetone-water based biomass producer gas wet scrubbing. Annual International Meeting of ASABE, Louisville, Kentucky, August 7-10, 2011. Oral Presentation.
 24. **Bhoi, P. R.**, Patil, K. N., Huhnke, R. L., & Bellmer, D. D. Improved downdraft gasifier performance by preheating input air. Annual International Meeting of ASABE, Louisville, Kentucky, August 7-10, 2011. Poster Presentation.
 25. **Bhoi, P. R.**, Patil, K. N., & Huhnke, R. L. Effect of input air preheating on downdraft gasification of switchgrass. Annual State Conference of Oklahoma EPSCoR, Norman, OK, April 21, 2011. Oral and Poster Presentation.
 26. Patil, K. N., **Bhoi, P. R.**, Huhnke, R. L., & Bellmer, D. D. Effect of input air preheating on downdraft gasification of forage sorghum. Annual State Conference of Oklahoma EPSCoR, Norman, OK, April 29, 2010. Poster Presentation.
 27. **Bhoi, P. R.**, Patil, K. N., Huhnke, R. L., & Bellmer, D. D. Air-steam gasification of switchgrass in a downdraft gasifier. Annual International Meeting of ASABE, Pittsburgh, PA, June 20-June 23, 2010. Poster Presentation.

28. Patil, K. N., **Bhoi, P. R.**, Huhnke, R. L., & Bellmer, D. D. Downdraft gasification of forage sorghum. Annual International Meeting of ASABE, Pittsburgh, PA, June 20-23, 2010. Poster Presentation.
29. Patil, K. N., **Bhoi, P. R.**, Huhnke, R. L. & Bellmer, D. D. Downdraft air-steam gasification of forage sorghum. Symposium on Thermal and Catalytic Sciences for Biofuels and Biobased Products, Ames, Iowa, September 21–23, 2010. Poster Presentation.

Funded Grants

1. **Bhoi, P. R. (PI)**. Development of Sustainable, Environmentally Benign and Low-cost Hydrocarbon Fuels Utilizing Waste Carbon Resources. Faculty Research Seed Grant 2017-2018. Allen E. Paulson College of Engineering & Information Technology. Georgia Southern University, Statesboro, GA. 11/1/2017 – 12/20/2018. \$8000.
2. Kumar, A. (PI), Diaz, G. (Co-PI) and **Bhoi, P.R. (Co-PI)**. Low temperature plasma gasification to utilize diverse carbonaceous feedstocks. The South Central Sun Grant Program. U.S. Department of Agriculture - National Institute of Food and Agriculture (USDA - NIFA). 1/9/2016 – 8/31/2018. \$149,990.

Assisted in preparation of:

1. OSU National Energy Solutions Institute – Smart Energy Sources (NESI-SES). Further development and demonstration of a mobile power generation system. Kumar, A. (PI) and Huhnke, R. L. (Co-PI). 1/11/2015 – 31/10/2016. \$50,000.
2. OSU National Energy Solutions Institute – Smart Energy Sources (NESI-SES). Novel, low-tech biomass-based recyclable filtration system to remove syngas tars in mobile power generation system. Kumar, A. (PI) and Huhnke, R. L. (Co-PI). 6/15/2015 – 31/8/2016. \$50,000.
3. OSU Research Foundation. Scale-up of OSU’s Downdraft Gasifier for Commercial Applications. Kumar, A. (PI) and Huhnke, R. L. (Co-PI). 1/1/2015 – 9/30/2015. \$150,000.
4. OSU Technology Development Center (TBDP). Scale-up of OSU’s Downdraft Gasifier for Commercial Applications. Kumar, A. (PI) and Huhnke, R. L. (Co-PI). 1/11/2014 – 10/31/2015. \$50,000.
5. Patil, K. N. (PI) and Huhnke, R. L. (Co-PI) Design, fabrication, and evaluation of 8 million btu per hour (12 tons biomass per day) unique downdraft gasifier system for decentralized energy and power applications, Oklahoma Bioenergy Center. 2008 – 2012. \$273,000
6. Pathak, B. S. (PI), and Patil, K. N. Gasifier Action Research Project. Ministry of Non-Conventional Energy Sources, Govt. of India. 1998-2001. Rs. 8, 311,000.

Synergistic Activities

1. Served on editorial board of International Journal of Renewable Energy Technology (2012 to 2014), Frontiers in Bioenergy and Biofuels and The Scientific World Journal: Energy

2. Served as a reviewer to peer referred journals such as Biomass and Bioenergy, Renewable Energy, Energy, Applied Energy, Biomass Conversion and Biorefinery, Transactions of ASABE and The Scientific World Journal: Energy.
3. Awarded “Outstanding Reviewer for Biomass & Bioenergy journal” by Elsevier, Amsterdam, The Netherlands, 2015.
4. Awarded “Renewable Energy Best Reviewer Award 2014” by Elsevier Limited, United Kingdom. 2014.
5. Won “Cellulosic Biofuels Research Competition” (3rd place) held during Oklahoma EPSCoR Annual State Conference, Stillwater, OK April 10, 2012

Professional Membership

Association of Energy Engineers (AEE)	2016 – 2018
American Society of Agricultural and Biological Engineers (ASABE)	2010 – 2016
Institute of Industrial Engineers (IIE)	2013 – 2014
Renewable Energy Forum of India (REFI)	2000 – 2006