



First Name: **Abhijeet** Last Name: **Borole**

Title: **Research Scientist**

Institution: **ORNL**

Mailing Address: **1-Bethel valley Road**

City: **Oak Ridge** State: **TN** Zip Code: **37831**

Country: **USA**

Country Code: **1** Phone: **(865) 576-7421**



PLACE HEADSHOT HERE

Email: borolea@ornl.gov

Website: <https://www.ornl.gov/staff-profile/abhijeet-p-borole> <http://bredesencenter.uk>

Education:

PhD: **The University of Tulsa, OK**

MS: **The University of Tulsa, OK**

BS: **University of Mumbai, India**

General Areas of Expertise:

Bioenergy, wastewater treatment, bioelectrochemical systems, microbial electrolysis, anaerobic digestion

Short Bio:

Abhijeet Borole is a chemical engineer with expertise in biomass conversion, waste to energy and bioelectrochemical systems. He is currently a Research Scientist at Oak Ridge National Laboratory and holds a Joint Faculty Professor appointment at the University of Tennessee, Knoxville in Chemical and Biomolecular Engineering Department as well as in Energy Science and Engineering program at the Bredesen Center for Interdisciplinary Research and Education. He is involved in R&D focused on fermentation, microbial fuel cells and electrolysis cells and application of bioelectrochemical systems in the biorefinery and the oil and gas industry. He has published over 60 peer-reviewed publications and holds 4 patents. He has also contributed to three books in the area of biocatalysis and bioenergy. His interests lie at the interface of biology, electrochemistry and engineering, which are targeted towards increasing energy efficiency during electrosynthesis of fuels and chemicals from biomass and waste. He works on understanding limitations of electroactive biofilms and developing strategies to optimize processes directing electron transfer from low value resources to higher value products.

His other interests include water-energy-food nexus, bioprocess and bioreactor development, energy efficiency in biological and chemical production, petroleum and coal bioprocessing, multiphase process design, environmental biocatalysis and bioremediation. Specific processes he has worked on include microbial electrolysis, fuel cells, biomass pyrolysis, syngas utilization, biodesulfurization, biological mercury removal and anaerobic digestion.

Five Representative Publications:

- Borole, A. P., G. Reguera, et al. (2011). Electroactive Biofilms: Current Status and Future Research Needs. A review article published in Energy Environ. Sci, 4, 4813-4834.
- Borole, A. P. Improving Energy Efficiency and Enabling Water Recycle in Biorefineries Using Microbial Electrolysis Cells. A perspective article in Biofuels, Bioproducts, Biorefining, 5, 28-36 (2011).
- Borole, A.P., J. Mielenz, T.A. Vishnivetskaya, and C.Y. Hamilton, Controlling accumulation of fermentation inhibitors in biorefinery water recycle using microbial fuel cells. Biotechnol. Biofuels, 2009, 2(7), open access.
- X. Zeng, M.A. Collins, A.P. Borole, S.G. Pavlostathis, The extent of fermentative transformation of phenolic compounds in the bioanode controls exoelectrogenic activity in a microbial electrolysis cell., Wat. Res., 109 (2017) 299-309.
- Beegle, J. and A. P. Borole (2017). "An Integrated Microbial Electrolysis-Anaerobic Digestion Process Combined with Pretreatment of Wastewater Solids to Improve Hydrogen Production." Environmental Science: Water Research & Technology 3: 1073-1085.

FEWSTERN Symposium 2017 Presentation Title and Abstract:

Empty box for presentation title and abstract.