References

[1] A. H. Igoni, M. J. Ayotamuno, C. L. Eze, S. O. T. Ogaji and S. Probert, "Designs of anaerobic digesters for producing biogas from municipal solid-waste," *Applied Energy,* vol. 85, no. 6, pp. 430-438, 2008.

[2] A. Jaffrin, N. Bentounes, A. M. Joan and S. Makhlouf, "Landfill Biogas for heating Greenhouses and providing Carbon Dioxide Supplement for Plant Growth," *Biosystems Engineering,* vol. 86, no. 1, pp. 113-123, 2003.

[3] J. Durkee, "US and global environmental regulations," in *Management of Industrial Cleaning Technology and Processes*, Elsevier Science, 2006, pp. 43-98.

[4] M. Shao, Y. Zhang, L. Zeng, X. Tang, J. Zhang, L. Zhong and B. Wang, "Ground-level ozone in the Pearl River Delta and the roles of VOC and NOx in its production," *Journal of Environmental Management,* vol. 90, no. 1, pp. 512-518, 2009.

[5] N. Imanaka and T. Masui, "Advances in direct NOx decomposition catalysts," *Applied Catalysis A: General,* vol. 431–432, no. 26, pp. 1-8, 2012.

[6] J. S. Pandey, R. Kumar and S. Devotta, "Health risks of NO2, SPM and SO2 in Delhi (India)," *Atmospheric Environment,* vol. 39, no. 36, pp. 6868-6874, 2005.

[7] J.-Y. Chen, "Proceedings of the Third International Workshop on Measurement and Computation of Turbulent Nonpremixed Flames," Colorado, 1998.

[8] Pooja Ghosh, Goldy Shah, Shivali Sahota, Lakhveer Singh, Virendra Kumar Vijay, "Biogas production from waste: technical overview," in *Bioreactors,*, New Delhi, Elsevier, 2020, pp. 89-104.

[9] "Biogas composition," 2009. [Online]. Available: www.biogas-renewable-energy.info/biogas_composition.html.

[10] C. T. Bowman, "Gas-Phase Reaction Mechanisms for Nitrogen Oxide Formation and Removal in Combustion," *Pollutants from Combustion. NATO Science Series (Series C: Mathematical and Physical Sciences),* vol. 547, no. 1, pp. 123-144, 2000.

[11] C. P. Fenimore, "Formation of nitric oxide in premixed hydrocarbon flames," *Symposium (International) on Combustion,* vol. 13, no. 1, pp. 373-380, 1971.

[12] "Burner Optimisation for NOx Control (Excess Air Control, Burner Fine Tuning)," 20 January 2018. [Online]. Available: https://www.iea-coal.org/burner-optimisation-for-nox-control-excess-air-control-burner-fine-tuning/.

[13] Seik Park, Gyung Min Choi, MamoruTanahashi, "Demonstration of a gas turbine combustion-tuning method and sensitivity analysis of the combustion-tuning parameters with regard to NOx emissions," *Fuel*, pp. 1134-1142, 2019.

[14] Hartmut Spliethoff, Ulrich Greul, Helmut Rüdiger, Klaus R.G.Hein, "Basic effects on NOx emissions in air staging and reburning at a bench-scale test facility," *Fuel*, pp. 560-564, April 1996.

[15] T. N. Roger Salzmann, "Fuel Staging for NOx Reduction in Biomass Combustion: Experiments and Modeling," *Energy & Fuels*, pp. 575-582, 11 April 2001.

[16] João Baltasar, Maria G. Carvalho, Pedro Coelho, MárioCosta, "Flue gas recirculation in a gas-fired laboratory furnace: Measurements and modelling," *Fuel*, pp. 919-929, August 1997.

[17] Feng Zhou, Jianqin Fu, Denghui Li, Jingping Liu, Chia-fon F. Lee, Yanshan Yin,, "Experimental study on combustion, emissions and thermal balance of high compression ratio engine fueled with liquefied methane gas," *Applied Thermal Engineering*, vol. 161, no. 1, pp. 1-14, 2019.

[18] Wen Zeng, , Jing Liu, Hongan Ma, Yu Liu, Aiguo Liu, "Experimental study on the flame propagation and laminar combustion," *Energy*, vol. 158, no. 1, pp. 437-448, 2018.

[19] Peter H. Joo, Marc R.J. Charest, Clinton P.T. Groth, Ömer L. Gülder, "Comparison of structures of laminar methane–oxygen and methane–air," *Combustion and Flame*, vol. 160, no. 1, pp. 1990-1998, 2013.

[20] Tongchit Suthisripok, Thananchai Promjun, Assawin Rangron, "A Comparative Study of a used 4-Stroke Motorcycle Engine Performance," *The 7th International Conference on Automotive Engineering*, vol. 28, no. 1, pp. 47-55, 2011.

[21] H.S. Zhen a, C.W. Leung, C.S. Cheung, Z.H. Huang, "Characterization of biogas-hydrogen premixed," *International Journal of Hydrogen Energy*, vol. 39, no. 25, pp. 13292-13299, 2014.

[22] Maruntalu O, Lazaroiu G, Bondrea D A, "Mathematical model for air pollutant dispersion emitted by fuel combustion," *UPB Scientific Bulletin*, vol. 77, no. 4, p. 229–236, 2015.

[23] H. Whaley, “A proposed canadian standard for estimating atmospheric dispersion of combustion source pollution from chimneys,” *Atmospheric Environment (1967),* vol. 3, no. 2, pp. 177-195, 1969.

[24] F. Toja-Silva, J. Chen, S. Hachinger and F. Hase, “CFD simulation of CO2 dispersion from urban thermal power plant: Analysis of turbulent Schmidt number and comparison with Gaussian plume model and measurements,” *Journal of Wind Engineering and Industrial Aerodynamics,* vol. 169, pp. 177-193, 2017.

[25] Gregory P. Smith, David M. Golden, Michael Frenklach, Nigel W. Moriarty, Boris Eiteneer, Mikhail Goldenberg, C. Thomas Bowman, Ronald K. Hanson, Soonho Song, William C. Gardiner, Jr., Vitali V. Lissianski, Zhiwei Q, “GRI-Mech 3.0,” [Online]. Available: http://combustion.berkeley.edu/gri-mech/version30/text30.html. [Accessed 2021].

[26] H. Selim, A. K. Gupta and M. Sassi, “Reduced Mechanism for Hydrogen Sulfide Oxidation,” *Proceedings of the ASME 2009 International Design Engineering Technical Conferences and Computers and Information in Engineering Conference,* vol. 2, pp. 263-278, 2009.

[27] Francesco Contino, Jean-Baptiste Masurier, Fabrice Foucher, Tommaso Lucchinid, Gianluca D’Errico, Philippe Dagaut, “CFD simulations using the TDAC method to model iso-octane combustion for a large range of ozone seeding and temperature conditions in a single cylinder HCCI engine,” *Fuel,* pp. 179-184, 2014.

[28] Zhiyi Li, Michał T. Lewandowski, Francesco Contino, Alessandro Parente, “Assessment of On-the-Fly Chemistry Reduction and Tabulation Approaches for the Simulation of Moderate or Intense Low-Oxygen Dilution Combustion,” *Energy & Fuels,* vol. 32, no. 10, pp. 10121-10131, 2018.

[29] Parviz Moin, Krishnan Mahesh, “Direct Numerical Simulation: A Tool in Turbulence Research,” *Annual Review of Fluid Mechanics,* vol. 30, no. 1, pp. 539-578, 1998.

[30] Heinz Pitsch, “Large-Eddy Simulation of Turbulent Combustion,” *Annual Review of Fluid Mechanics,* vol. 38, no. 1, pp. 453-482, 2006.

[31] Svetlana V. Poroseva, Juan D. Colmenares, Scott M. Murman, “On the accuracy of RANS simulations with DNS data,” *Physics of Fluids,* vol. 28, no. 1, pp. 1-21, 2016.

[32] Masoud Darbandi, Mehdi Zakyani, Gerry Schneider, "Evaluation of Different k-omega and k-epsilon Turbulence Models in a New Curvilinear Formulation," in *17th AIAA Computational Fluid Dynamics Conference*, Toronto, 2012.

[33] M. Herout, J. Malaťák, L. Kučera and T. Dlabaja, "Biogas composition depending on the type of plant biomass used," *Research in Agricultural Engineering,* vol. 57, no. 4, pp. 137-143, 2011.

[34] S. Rasi, A. Veijanen and J. Rintala, "Trace compounds of biogas from different biogas production plants," *Energy,* vol. 32, no. 8, pp. 1375-1380, 2007.

[35] B. Bharathiraja, T. Sudharsana, J. Jayamuthunagai, R. Praveenkumar, S. Chozhavendhan and J. Iyyappan, "Biogas production–A review on composition, fuel properties, feed stock and principles of anaerobic digestion," *Renewable and Sustainable Energy Reviews,* vol. 90, pp. 570-582, 2018.

[36] N. W. Ryan, M. M. Johnson, "Transistion from laminar to turbulent flow in pipes," *A.1.Ch.E. Journal,* vol. 5, no. 4, pp. 433-435, 1959.

[37] M. Talibi, P. Hellier and N. Ladommatos, "Combustion and exhaust emission characteristics, and in-cylinder gas composition, of hydrogen enriched biogas mixtures in a diesel engine," *Energy*, vol. 124, no. 1, pp. 397-412, 2017.

[38] S. A. Hsu, E. A. Meindl and D. B. Gilhousen, "Determining the Power-Law Wind-Profile Exponent under Near-Neutral Stability Conditions at Sea," *Journal of Applied Meteorology and Climatology,* vol. 33, no. 6, p. 757–765, 1994.

[39] "Global Wind Atlas," Technical University of Denmark, 2019. [Online]. Available: https://globalwindatlas.info/. [Accessed 2021].

[40] F. Porté-Agel, Y.-T. Wu, H. Lu and R. J. Conzemius, "Large-eddy simulation of atmospheric boundary layer flow through wind turbines and wind farms," *Journal of Wind Engineering and Industrial Aerodynamics,* vol. 99, no. 4, pp. 154-168, 2011.

[41] M. Rösler, V. John and N. Ahmed, "The Smagorinsky turbulence model," Bachelor thesis at the Institute of Mathematics of Freie University, Berlin, 2015.

[42] Central Environmental Authority - Sri Lanka, "Gazette Extraordinary of The Democratic Socialist Republic of Sri Lanka, No. 2126/36," 2019.

[43] Vu Tran, E. Y. K. Ng, Martin Skote, "CFD simulation of dense gas dispersion in neutral atmospheric boundary layer with OpenFOAM," *Meteorology and Atmospheric Physics,* vol. 132, no. 1, p. 273–285, 2020.

[44] E. S. Ferreira Jr, S. S. V. Vianna, “Large Eddy Simulation combined with equivalent diameter for turbulent jet modelling and,” *Brazilian Congress of Chemical Engineering,* vol. 33, no. 3, pp. 525-540, 2016.

[45] Ministry of Environment and Natural Resources, “Gazette Extraordinary of the Democratic Socialist Republic of Sri Lanka, No. 1562/22,” 2008.

[46] World Health Organization , “WHO Air quality guidelinesfor particulate matter,ozone, nitrogendioxide and sulfur dioxide - Global update 2005 - Summary of risk assessment,” 2005.

[47] “Air quality and pollen forecast for Colombo,” meteoblue , 9 3 2021. [Online]. Available: https://www.meteoblue.com/en/weather/outdoorsports/airquality/colombo_sri-lanka_1248991. [Accessed 9 3 2021].

[48] J. Rajika and M. Narayana, “Modelling and simulation of wood chip combustion in a hot air generator system,” *SpringerPlus,* vol. 5, no. 1, pp. 1-19, 2016.

[49] J. Grove, “Nobel wins show basic research 'key to climate battle',” Times Higher Education, 11 10 2021. [Online]. Available: https://www.timeshighereducation.com/news/nobel-wins-show-basic-research-key-climate-battle. [Accessed 15 10 2021].