

Name: Dr. Debarshi Mallick

Designation: HoD and Associate Professor

Address for Communication: (office): Dept. of Mechanical Engineering, GCU Guwahati

Mobile No.: 7002474945

WA No: 7002474945

Email: hod\_me@gimt-guwahati.ac.in

Gender: Male

Date of Birth: 31-12-1982

Educational Qualifications:

Sl. No.	Examination Passed	Year of passing	Board / Council / University	Specialization
1	HSLC/10 <sup>th</sup> Std.	1998	SEBA	
2	HSSLC/10+2 Std.	2001	AHSEC	Science stream
3	BE	2005	Assam Engineering College (Under Gauhati University)	Mechanical Engineering
4	ME	2008	Assam Engineering College (Under Gauhati University)	Master of Mechanical Engineering
6	Ph. D.	2019	IIT-Guwahati	Fluid and Thermal Engineering

Languages known: English, Hindi, Assamese and Bengali

(Read, Write & Speak)

Academic Experience: 8 years

**List of Publications:**

**Journal:**

1. **Mallick D**, Poddar M.K, Mahanta P, Moholkar VS. Discernment of synergism in pyrolysis of biomass blends using thermogravimetric analysis. *Bioresource Technology*, 261 (2018) 294–305.
2. **Mallick D**, Mahanta P, Moholkar VS. Co-gasification of coal and biomass blends: Chemistry and Engineering. *Fuel*, 204, 2017 106-128.
3. **Mallick D**, Mahanta P, Moholkar VS. Investigations in Co–gasification of Coal/Biomass Blends in a Pilot Scale (50 kWe) Circulating Fluidized Bed Gasifier. *Journal of Energy Institute*, 93 (2020) 99-111, DOI 10.1016/j.joei.2019.04.005
4. **Mallick D**, Mahanta P, Moholkar VS. Co-gasification of biomass blends: performance evaluation in circulating fluidized bed gasifier, *Energy*, 192 (2020) 116682.
5. Bhowmik R, Das S, **Mallick D**, Gautam SS. Predicting the elastic properties of hemp fiber – A comparative study on different polymer composite, *Materials Today: Proceedings*, 50 (5), 2022, 2510-2514.

#### **Book Chapter:**

1. **Mallick D**, Mahanta P, Moholkar VS. Synergistic Effects in Gasification of Coal/Biomass Blends: Analysis and Review. In: De S, Agarwal A, Moholkar V, Thallada B. (Eds) *Coal and Biomass Gasification. Energy, Environment, and Sustainability*. Springer, Singapore, 2018, pp. 473–497. DOI: 10.1007/978-981-10-7335-9\_19
2. **Mallick D**, Buragohain B, Mahanta P, Moholkar VS. Gasification of Mixed Biomass: Analysis Using Equilibrium, Semi-equilibrium, and Kinetic Models. In: De S, Agarwal A, Moholkar V, Thallada B. (Eds) *Coal and Biomass Gasification. Energy, Environment, and Sustainability*. Springer, Singapore, 2018, pp. 223–441. DOI: 10.1007/978-981-10-7335-9\_9
3. **Mallick D**, Sharma SD, Kushwaha A, Brahma HS, Nath R, Bhowmik R. Emerging commercial opportunities for conversion of waste to energy: aspect of gasification technology. In: Hussain CM, Singh S, Goswami L. (Eds) *Waste-to-Energy Approaches Towards Zero Waste*, Elsevier. 2021, Pp: 105-127, DOI: 10.1016/B978-0-323-85387-3.00012-4

4. Kushwaha A, Bajgai RC, **Mallick D**, Singh A, Goswami L, Bhan U, Hussain CM. Biohythane production from organic waste: challenges and techno-economic perspective. In: Hussain CM, Singh S, Goswami L. (Eds) Waste-to-Energy Approaches Towards Zero Waste, Elsevier. 2021, Pp: 373-387, DOI: 10.1016/B978-0-323-85387-3.00011-2
5. **Mallick D**, Goswami M, Bhuyan D. Pyrolysis Characterization of Biomass Feedstock Using Thermogravimetric Analysis In Lecture Notes in Mechanical Engineering, Springer, 2022, DOI: 10.1007/978-981-19-4388-1

**Conference paper:**

1. **Mallick D**, Mahanta P, Moholkar VS. Pyrolysis analysis of Sawdust, Coal and the blends of coal and Sawdust using Thermogravimetric analyzer, Proc. 6<sup>th</sup> International and 43<sup>rd</sup> National Conference on Fluid Mechanics and Fluid Power, Allahabad, India, 2016, pp. 110.
2. **Mallick D**, Mahanta P, Moholkar VS. Effects of operating parameters in a Circulating Fluidized Bed (CFB) Biomass Gasifier, Proc. 6<sup>th</sup> International and 43<sup>rd</sup> National Conference on Fluid Mechanics and Fluid Power, Allahabad, India, 2016, pp. 106 - 107.
3. **Mallick D**, Baruah D, Mahanta P, Moholkar VS. Experimental studies on coal/biomass blends in Circulating Fluidized Bed Gasifier, Indo-Japan Bilateral Symposium on Future Perspective of Bioresource Utilization in North-Eastern Region (IJBS 17), February 01- 04, 2018, Indian Institute of Technology Guwahati, India.
4. Baruah D, **Mallick D**, Kalita P, Moholkar VS. Kinetic studies on coal/biomass blends for co-gasification, Indo-Japan Bilateral Symposium on Future Perspective of Bioresource Utilization in North-Eastern Region (IJBS 17), February, 01-04, 2018, Indian Institute of Technology Guwahati, India.
5. **Mallick D**, Mahanta P, Moholkar VS. Performance Evaluation of Co-gasification of Low-Grade Coal and Sawdust in a Circulating Fluidized Bed Gasifier, Proc. National Conference on Recent Science and Technology (NCRAS 2018), March 15-17, 2018, Assam Science and Technology University, Guwahati, India.

6. **Mallick D**, Baruah D, Mahanta P, Moholkar VS. A comprehensive kinetic analysis of bamboo waste using Thermogravimetric analysis, Proc. 2<sup>nd</sup> International Conference on Energy Power and Environment (ICEPE 2018), NIT Meghalaya, India. IEEE, DOI: 10.1109/EPETSG.2018.8658672
7. Baruah D, **Mallick D**, Kalita P, Moholkar VS. Pyrolysis kinetics of elephant grass using thermogravimetric analysis, Proc. 2<sup>nd</sup> International Conference on Energy Power and Environment (ICEPE 2018), NIT Meghalaya, India. IEEE, DOI: 10.1109/EPETSG.2018.8658640
8. **Mallick D**, BJ Bora, SA Barbhuiya, R Banik, J Garg, AK Sarma, R and Gogoi. Detailed study of pyrolysis kinetics of biomass using thermogravimetric analysis, International conference on Current Trends in Renewable and Alternate Energy (ICRAE 2018), AIP Conference Proceedings 2091, 020014; DOI: 10.1063/1.5096505.
9. **Mallick D**, Goswami M, Bhuyan D. Pyrolysis Characterization of Biomass Feedstock Using Thermogravimetric Analysis. International Conference on Thermo-fluids and Manufacturing Science. KIIT. Bhubaneswar, India, January 24-25, 2022.
10. **Mallick D**, Bora BJ, Kakati RK, Barbhuiya SA, Banik R, Garg J, Sarma R, Gogoi AK, Das PK. Pyrolysis kinetics of water hyacinth using thermogravimetric analysis. International Conference on Advancement Materials for Energy Science and Technology (AMEST 2019), 26-28, December 2019.
11. Kakati RK, Bora BJ, **Mallick D**, Deka P, Thakuria MP, Barman R, Alam S, Choudhury M, Gohain TB, Production and performance analysis of biodiesel from algae, International Conference on Advancement Materials for Energy Science and Technology (AMEST 2019), 26-28, December 2019.

#### **Workshop Participated:**

1. Participated in Industry-Academia Workshop on “**Technology Imperatives for Exploration and Production of Oil and Gas**” organized by ONGC in 2010.
2. Participated in International Workshop on “**Advance biomass thermal conversion processes**” organized by Thermal Engineering Division, CSIR-CMERI in collaboration with Cranfield University of UK, UCL of Belgium, and IIT Guwahati in 2013.

3. Participated in Workshop on “**Frontier Energy Research with Industry-Academia Partnership**” organized by Centre for Energy, IIT Guwahati 2015.
4. Participated in International Workshop on “**Aspects of Fluidized Bed Technology**” organized by Centre for Energy, IIT Guwahati in associated with Central Power Research Institute Bangalore, Cranfield University UK, UCL Belgium, and CSIR Durgapur in 2016.
5. Participated in the Exhibition and Workshop “**Innovation and Entrepreneurship**” organized by DSIR-PRISM-TOCIC IIT Guwahati in 2018.

Research Experience: 6 years

**Research Projects:**

SI No.	Title	Agency	Period	Grant (in Rs.)
1	Pyrolysis kinetic study of Mesua ferrea seed covers for bioenergy potential using Thermogravimetric analysis	MHRD (under TEQIP-III)	2019 to 2021	3,00000/-
2	Power generation utilizing product gas of co-gasification of mixed feedstock in a downdraft gasifier	AICTE	2021 to present	16, 70000/-

Membership of Professional bodies: **ASME**

**Award:** Best paper award in “2<sup>nd</sup> International Conference on Energy, Power, and Environment (ICEPE 2018)” held in NIT Meghalaya

Dr. Debarshi Mallick