

BIO-DATA

Dr. Tapan Kumar Gogoi

Professor and Head

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Specialization: Thermal, Energy & Environmental Engg.

Experience: 25 years in teaching and research

Positions held:	Period
Head of the Department Mech. Engg., Tezpur University	23 rd August, 2007 to 22 nd August-2010
Head of the Department Mech. Engg., Tezpur University	6 th June, 2015 to 5 th June, 2016
Head of the Department Mech. Engg., Tezpur University	6 th June, 2019 to till date

Area of Research:

1. Modelling, analysis and optimization of advanced energy systems
2. Thermodynamic analysis of multi-generation systems
2. Inverse analysis of thermal systems
3. Biodiesel characterization and engine performance evaluation
4. Computational heat transfer and fluid flow

Education:

B.E., Mechanical Engineering, Assam Engg. College, Guwahati

M.Tech., Mechanical Engineering, IIT, Kharagpur

Ph.D., Tezpur University

Research Project Completed: Study of performance, combustion and emission characteristics of a turbocharged diesel engine with biodiesels available in North eastern region of India, funded by DST, Govt. of India

Ph D students guided: 3 Completed, 4 ongoing

Ph D Thesis Completed:

1. Performance analysis of Solid oxide fuel cell (SOFC) integrated combined power cycles and parameter estimation using inverse method.
2. Thermodynamic modeling and analysis of steam turbine based cogeneration systems with single and double effect absorption cooling as bottoming cycles
3. Performance evaluation of single and double effect H₂O-LiCl vapour absorption cooling systems through exergy analysis and optimization.

List of Publications:

Book Chapters:

1. T.K. Gogoi, U.S. Dixit, Basics and Applications of Thermal Engineering, Introduction to Mechanical Engineering, (2018) 137-178, Springer Nature
2. P. Haloi, T.K. Gogoi, Performance Analysis of Coal-Fired Open Cycle MHD plant at Constant Subsonic Inlet Nozzle Mach Number with Variation in Nozzle-Area Ratio, Advances in Mechanical Engineering, Lecture Notes in Mechanical Engineering (2020), 709-716, Springer Nature
3. P. Haloi, T.K. Gogoi, Exergy Modelling of a Coal-Fired MHD Power Plant, Advances in Mechanical Engineering, Lecture Notes in Mechanical Engineering (2020), 81-89, Springer Nature

Journal publications:

1.	T. K. Gogoi, S. Saikia, Performance analysis of a solar heat driven organic Rankine cycle and absorption cooling system, Thermal Science and Engineering Progress, 13 (2019) 100372
2.	D. Konwar, T. K. Gogoi, A.J. Das, Multi-objective optimization of double effect series and parallel flow water–lithium chloride and water–lithium bromide absorption refrigeration systems, Energy Conversion and Management 180 (2019) 425–441.
3.	D. Konwar, T. K. Gogoi, A.J. Das, "Reply to Comment on Multi-objective optimization

	of double effect series and parallel flow water-lithium chloride and water-lithium bromide absorption refrigeration systems", <i>Energy Conversion and Management</i> , 185: 938-941, 2019
4.	P. Haloi, T.K. Gogoi, Energy analysis of a coal-fired MHD power plant, <i>Int. J. of Recent Technology and Engineering</i> , 8 (2019) 281–285
5.	D. Konwar, T. K. Gogoi, Performance of double effect H ₂ O–LiCl absorption refrigeration systems and comparison with H ₂ O–LiBr systems, Part 1: Energy Analysis, Article in press, <i>Thermal Science & Engg. Progress</i> , 8 (2018) 184-203
6.	D. Konwar, T. K. Gogoi, Performance of double effect H ₂ O–LiCl absorption refrigeration systems and comparison with H ₂ O–LiBr systems, Part 2: Exergy Analysis, <i>Thermal Science & Engg. Progress</i> , 8 (2018) 171-183.
7.	R. Das, K. Singh, B. Akay and T.K. Gogoi, Application of artificial bee colony algorithm for maximizing heat transfer in a perforated fin, <i>Proceedings of IMechE, Part E: Journal of Process Mechanical Engineering</i> 232 (2018) 38-48
8.	P. Sarmah, T.K. Gogoi, R. Das, Estimation of operating parameters of a SOFC integrated combined power cycle using differential evolution based inverse method, <i>Applied Thermal Engineering</i> 119 (2017) 98–107
9.	J. Kakati, T.K. Gogoi, K. Pakshirajan, Production of biodiesel from Amari (Amoora Wallichii King) tree seeds using optimum process parameters and its characterization, <i>Energy Conversion and Management</i> 135 (2017) 281–290.
10.	Pranjal Sarmah, T. K. Gogoi, Performance comparison of SOFC integrated combined power systems with three different bottoming steam turbine cycles, <i>Energy Conversion and Management</i> 132 (2017) 91–101.
11.	K. Trinavee, T.K. Gogoi, M. Pandey, Laminar convective heat transfer characteristic of Al ₂ O ₃ /water nanofluid in a circular microchannel, <i>Journal of Physics: Conference Series</i> 759 (2016) 012088
12.	R. Das, K. Singh and T.K. Gogoi, Estimation of critical dimensions for a trapezoidal-shaped steel fin using hybrid differential evolution algorithm, <i>Neural Computing and Applications</i> , (2016) pp 1-11; DOI 10.1007/s00521-015-2155-x
13.	J. Kakati, T.K. Gogoi, Biodiesel Production from Kutkura (Meyna spinosa Roxb. Ex.) Fruit seed oil: its characterization and engine performance evaluation with 10% and 20% blends, <i>Energy Conversion and Management</i> 121 (2016) 152–161
14.	T.K. Gogoi, D. Konwar, Exergy analysis of a H ₂ O–LiCl absorption refrigeration system with operating temperatures estimated through inverse analysis, <i>Energy Conversion and Management</i> , 110 (2016) 436-447; DOI:10.1016/j.enconman.2015.12.037
15.	K. Talukdar, T.K. Gogoi, Exergy analysis of a combined vapor power cycle and boiler flue gas driven double effect water–LiBr absorption refrigeration system, <i>Energy Conversion and Management</i> 108 (2016), 468-477 DOI: 10.1016/j.enconman.2015.11.020
16.	T. K. Gogoi, Estimation of Operating Parameters of a Water–LiBr Vapor Absorption Refrigeration System Through Inverse Analysis, <i>ASME J. of Energy Resources Technology</i> , 138 (2) (2016), 022002 Paper No: JERT-14-1402. DOI: 10.1115/1.4031833
17.	T.K. Gogoi, M. Pandey, and R. Das, Estimation of operating parameters of a reheat regenerative power cycle using simplex search and differential evolution based inverse methods, <i>Energy Conversion and Management</i> , 91 (2015) 204–218.

18.	T.K. Gogoi, P. Sarmah, D. Deb Nath, Energy and exergy based performance analyses of a solid oxide fuel cell integrated combined cycle power plant, <i>Energy Conversion and Management</i> , 86 (2014) 507–519.
19.	T.K. Gogoi, K. Talukdar, Thermodynamic analysis of a combined reheat regenerative thermal power plant and water-LiBr vapour absorption refrigeration system, <i>Energy Conversion and Management</i> 78 (2014) 595–610
20.	T.K. Gogoi, K. Talukdar, Exergy based parametric analysis of a combined reheat regenerativethermal power plant and water–LiBr vapor absorption refrigeration system, <i>Energy Conversion and Management</i> 83 (2014) 119–132.
21.	T. K. Gogoi, A Combined Cycle Plant with air and fuel recuperator for Captive power application, Part 1: Performance analysis and comparison with non - recuperated and gas turbine cycle with air recuperator, <i>Energy Conversion and Management</i> 79 (2014) 771–777.
22.	T. K. Gogoi, R. Das, A Combined Cycle Plant with air and fuel recuperator for Captive power application, Part 2: Inverse analysis and parameter estimation, <i>Energy Conversion and Management</i> 79 (2014) 778–789.
23.	T. K. Gogoi, R. Das, Inverse analysis of an internal reforming solid oxide fuel cell system using simplex search method, <i>Applied Mathematical Modelling</i> 37 (2013) 6994–7015.
24.	T.K. Gogoi, Exergy Analysis of A Diesel Engine Operated with Koroch Seed Oil Methyl Ester and Its Diesel Fuel Blends, <i>Int. J. of Exergy</i> , 12 (2013) 183–204.
25.	T.K. Gogoi, S. Sarma and S. Borthakur, Simulation of a hybrid solid oxide fuel cell -gas turbine system, <i>International Journal of Emerging Technology and Advanced Engineering</i> , 3 (3) (2013) 250-258.
26.	M. Pandey and T.K. Gogoi, Energy and exergy analysis of reheat regenerative vapour power cycle, <i>International Journal of Emerging Technology and Advanced Engineering</i> , 3 (3) (2013) 427-434.
27.	T.K. Gogoi, N.K Sarma, A.A. Choudhury and T. Talukdar, First law analysis of Diesel engine performance using diesel and biodiesel fuel, <i>International Journal of Emerging Technology and Advanced Engineering</i> , 3 (3) (2013) 421-426.
28.	T.K. Gogoi, A.K.Sarma, P.S. Misra, Syed T. Haque, Combustion analysis of jatropha methyl ester and its ethanol and acetone blends in a diesel engine, <i>International Journal of Emerging Technology and Advanced Engineering</i> , 3 (3) (2013) 51-57
29.	T.K. Gogoi, D.C. Baruah, The use of Koroch seed oil methyl ester blends as fuel in a diesel engine, <i>Applied Energy</i> , 88 (2011) 2713-2725.
30.	T.K. Gogoi, D.C. Baruah, Performance and energy analyses of a diesel engine fuelled with Koroch seed oil methyl ester and its diesel fuel blends, <i>Int. J. Energy Technology and Policy</i> , 7 (5/6) (2011) 433-454.
31.	T.K. Gogoi, D. C. Baruah, A Cycle Simulation Model for Predicting Performance of a Diesel Engine Fuelled by Diesel and Bio-diesel Blends, <i>Energy</i> 35 (2010) 1317–1323.

Conference publications

1.	T.K. Gogoi, U. Gauatam, Performance Evaluation of a Gas and Steam Turbine Based
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	Cogeneration Plant: A Case Study, GTINDIA 2019-2358, V001T02A003
2.	J. Nondy, T. K. Gogoi, Exergy Analysis of a Combined Gas Turbine and Organic Rankine Cycle Based Power and Absorption Cooling Systems, GTINDIA2019-2351, V001T02A002
3.	P. Bhuyan, P. Borah. T.K. Gogoi, Energetic and Exergetic Performance Comparison of a Hybrid Solar Kalina Cycle at Solar and Solar Storage Mode of Operations, 7th International Conference on Advances in Energy Research, 10–12 December 2019, , IIT Bombay.
4.	J. Kakati, T.K. Gogoi, Combustion analysis of a diesel engine fuelled with 10% and 20% blending of Terminalia seed oil based biodiesel with conventional diesel, in the Proceedings of the ISME, held during 23-25th February, 2017 at NIT Warangal, India
5.	M.P. Boruah, T.K. Gogoi, Thermal performance of tapered microchannel heat sink using Al ₂ O ₃ /water nanofluid, in the Proceedings of the SMETB,2017 held during 25-26th March, 2016 at Tezpur University, Assam, India
6.	K. Talukdar, T.K. Gogoi, Performance of a combined power and cooling system with vapour compression and absorption refrigeration system as bottoming cycle: a comparative study, in the Proceedings of the SMETB,2017 held during 25-26th March, 2016 at Tezpur University, Assam, India
7.	D. Konwar, T.K. Gogoi, Exergy based parametric analysis of a water-LiCl vapour absorption refrigeration system, in the Proceedings of the SMETB,2017 held during 25-26th March, 2016 at Tezpur University, Assam, India
8.	A. Bora, M. Saikia, S. Anand, T.K. Gogoi, Exergy analysis of a reheat regeneration vapour power cycle with a number of feed water heaters, in the Proceedings of the SMETB,2017 held during 25-26th March, 2016 at Tezpur University, Assam, India
9.	J. Kakati, T. K. Gogoi, Characterization of biodiesels and performance analysis of a diesel engine run on biodiesel blends, in the Proceedings of the SMETB,2017 held during 25-26th March, 2016 at Tezpur University, Assam, India
10.	T.K. Gogoi, J. Kakati, Characterization of biodiesel produced from Terminalia seed oil and engine performance evaluation with 10% and 20% blending, in the Proceedings of the IMECE,2016 held during 11-17th November, 2016 at Phoenix, Arizona, USA.
11.	K. Talukdar, T.K. Gogoi, Comparative analysis of performance of a combined power and cooling system with vapor compression and absorption refrigeration system as bottoming cycle, in the Proceedings of the COMET,16 held during 15-17 th January, 2016 at IIT BHU.
12.	K. Talukdar, T.K. Gogoi, Thermodynamic analysis of a combined vapor power cycle and absorption refrigeration system, in the proceedings of Global conference on Renewable energy held in NIT Patna, 4-6 th March, 2016.
13.	K. Trinavee, T.K. Gogoi, Flow and heat transfer analysis of AlO ₃ -water and Cu-water Nanofluid in a circular micro-channel, in the Proceedings of ETIE 2016 held during April 28-29, 2016 at Royal School of Engineering and Technology, Guwahati.
14.	K. Trinavee, T.K. Gogoi, M. Pandey, Flow and Heat transfer analysis in a circular microchannel with alumina based nanofluid, in the book of abstracts of XXVII IUPAP Conference on Computational physics, December 2-5, 2015 at IIT Guwahati
15.	P. Sarmah and T.K. Gogoi, Exergy analysis of a solid oxide fuel cell (sofc) integrated combined power cycle, in the Proceedings of the 17th ISME Conference on Advances

	in Mechanical Engineering held during October 3-4, 2015 at IIT Delhi, New Delhi.
16.	U. Gautam, S. Das, S. Das and T.K. Gogoi, A parametric study on the effect of varying open water heater pressure on thermodynamic performance of a combined cycle power plant, in the Proceedings of the 17th ISME Conference on Advances in Mechanical Engineering held during October 3-4, 2015 at IIT Delhi, New Delhi.
17.	P. Sarmah and T. K. Gogoi, Parametric analysis of a hybrid solid oxide fuel cell –gas turbine plant, in the proceedings of International Symposium on Aspects of Mechanical Engineering & Technology for Industry held in NERIST, Arunachal Pradesh, during 6-8 th December, 2014
18.	N. Koushik, S. Bhuyan and T.K. Gogoi, A model for diesel fuel droplet evaporation and parametric analysis of evaporation rate, in the proceedings of International Symposium on Aspects of Mechanical Engineering & Technology for Industry held in NERIST, Arunachal Pradesh, during 6-8 th December, 2014.
19.	S.Z. Hoque and T.K. Gogoi, Thermodynamic analysis of a cascaded vapour compression refrigeration system through exergy, in the proceedings of International Symposium on Aspects of Mechanical Engineering & Technology for Industry held in NERIST, Arunachal Pradesh, during 6-8 th December, 2014.
20.	T.K. Gogoi and M. Pandey, Performance analysis of a reheat regenerative thermal power plant with solid biomass fuels and coal of various compositions, in the proceedings of International conference on advanced materials and Energy technology (ICAMET) held in IEST Shibpur, Kolkata during 17-19 th December, 2014.
21.	T.K. Gogoi and P. Sarmah, Exergy analysis of a hybrid solid oxide fuel cell–gas turbine configuration, in the proceedings of International Conference on Environment and Energy (ICEE) held in IJNTUH, Kukatpally, Hyderabad during 15-17 th December, 2014.
22.	T.K. Gogoi, S. Sarma and S. Borthakur, Simulation of a hybrid solid oxide fuel cell-gas turbine system, in the proceedings of International Conference on Energy Resources Technologies for Sustainable Development (ICERTSD-2013), held in BESU during 7-9 th February,2013
23.	M. Pandey and T.K. Gogoi, Energy and exergy analysis of reheat regenerative vapour power cycle, in the proceedings of International Conference on Energy Resources Technologies for Sustainable Development (ICERTSD-2013), held in BESU during 7-9 th February,2013
24.	T.K. Gogoi, N.K Sarma, A.A. Choudhury and T. Talukdar, First law analysis of Diesel engine performance using diesel and biodiesel fuel, in the proceedings of International Conference on Energy Resources Technologies for Sustainable Development (ICERTSD-2013), held in BESU during 7-9 th February,2013.
25.	T.K. Gogoi, A.K.Sarma, P.S. Misra, Syed T. Haque, Combustion analysis of jatropha methyl ester and its ethanol and acetone blends in a diesel engine, in the proceedings of International Conference on Energy Resources Technologies for Sustainable Development (ICERTSD-2013), held in BESU during 7-9 th February,2013
26.	T.K. Gogoi, D.C. Baruah, Energetic Performance Analysis of a Diesel Engine Fuelled With Koroch Seed Oil Methyl Ester and Its Diesel Blends, in the proceedings of

	International Conference on Thermal Energy and Environment (INCOTEE), held in Kalasalingam University, Tamilnadu during 24-26 th March, 2011.
27.	T.K. Gogoi, S. Talukdar, D.C. Baruah, Comparative Analysis of Performance and Combustion of Koroch Seed Oil and Jatropa Methyl Ester blends in a Diesel Engine, in the proceedings of World Renewable Energy Congress (WREC) 2011 held in Linkoping, Sweden during 8-13 th May, 2011.
28.	T.K. Gogoi, D.C. Baruah, Study of Performance and Combustion in a small DI diesel engine fuelled with biodiesel and its diesel blends, in the proceedings of National Conference on Renewable Energy organized by Deptt. of Energy, Tezpur University during 23–25 March 2010.
29.	T.K. Gogoi, D.C. Baruah, Development of a cycle simulation model for predicting performance of a Diesel Engine fuelled by diesel and bio-diesel blends”. In the proceedings of CAMSCM, 2009 organized in NERIST, Nirjuli, Arunachal Pradesh

M.Tech. projects guided

1. Energetic and Exergetic Performance Comparison of a Hybrid Solar Kalina Cycle at Solar and Solar Storage Mode of Operations
2. Performance analysis of a solar hybrid combined triple effect absorption cooling system and Organic Rankine cycle and comparison with Kalina cycle integrated system.
3. Performance analysis of a solar heat driven Organic Rankine cycle and absorption cooling systems.
4. Multi-objective optimization of a steam power plant and performance analysis of boiler flue gas driven double effect absorption cooling systems
5. Thermo-Hydraulic Performance of a Tapered Microchannel Heat Sink with Al₂O₃-water Nanofluids.

6. Numerical study of laminar forced convection of some selected nanofluids in a circular microchannel with and without magnetic field effect.
7. Inverse estimation of Prandtl and Reynolds number in a hydrodynamically developed and thermally developing flow through a square duct

B.Tech. projects guided

1. Engine performance and combustion analysis with biodiesels from waste cooking oil
2. Exergy analysis of a reheat regeneration vapour power cycle with a number of feed water heaters
3. Exergy analysis of single and double effect ammonia water absorption refrigeration systems
4. Exergy analysis and thermo-economic optimization of a cascaded vapor compression refrigeration system
5. Exergy analysis of the captive power plant of Numaligarh Refinery limited, Golaghat, Assam
6. Numerical Simulation of a Hybrid Solid Oxide Fuel Cell (SOFC) –Gas turbine(GT) system
7. Study of performance of a reheat regenerative thermal power plant fueled with solid biomass and coal of various compositions: A theoretical study

8. Modeling of Fuel Injection system of a Diesel Engine
9. Numerical Analysis of Lid driven flow in a square cavity at low Reynolds Number
10. Numerical simulation of heat transfer in thermally and simultaneously developing flows in a circular pipe
11. Performance and Heat Release Analysis of a diesel engine fuelled with diesel and biodiesel blends.
12. Combustion and performance evaluation of a diesel engine fuelled with biodiesel produced from Koroch seed and Jatropha Curcus Oil
13. Numerical Solution of One dimensional transient heat conduction equation
14. Energy and Exergy Analyses of Diesel Engine Processes Using Bio-diesel Blends
15. Experimental investigation on performance, Combustion and emission characteristics of a single cylinder direct injection diesel engine fuelled with biodiesel
16. Modeling of heating and evaporation of fuel droplets: A numerical analysis
17. Performance and Combustion analysis of Jatropha methyl ester and its ethanol and acetone blends in a diesel engine

