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EDUCATION

(10-04-2017) دكتوراه
Mechanical Engineering/ Combustion and Renewable Fuels
University of Birmingham

RESEARCH METRICS

h-index (Scopus)	28
h-index (GS)	32
Citations (Scopus)	1941
Citations (GS)	2487
Documents (Scopus)	88
Documents (GS)	123

PATENTS

- A new method to analysis the physical and nanostructure properties of particulate matter (PM) emitted from diesel engine
- Design and manufacture an innovative small scale radial-inflow turbine for power generation purpose driven by low-temperature heat source

RESEARCH INTERESTS

- Internal combustion (IC) engines, Renewable fuels, Environment, Nanoparticles, Nano additives, Exhaust catalysts, Evaluation of exhaust emissions and Solar heating system

Mohammed Ali Fayad

محمد علي فياض مصلح

Associate Professor

PROFILE

Mohammed A. Fayad
Biography: Mohammed A. Fayad is Assistant Professor at the University of Technology- Iraq. Fayad has a PhD in Mechanical Engineering/Renewable energy from University of Birmingham, UK. Fayad has held senior at University of Technology- Iraq and he is expertise in many fields of internal combustion (IC) engines, renewable fuels, environment, nanoparticles, nano additives, exhaust catalysts, evaluation of exhaust emissions and solar heating systems. Currently, Fayad is manger of Energy and Renewable Energies Technology Center at University of Technology- Iraq. He has built good model after years of experience in research, evaluation, teaching and supervision in education, test equipment and scientific research. In this role he has involved with all the research development projects and he published over 80 scholarly papers and 2 patents as well as monographs, taught and researched in the different energy centers. His current interests are innovative engineering education, renewable fuels, engines, environmental catalyst, nanoparticles and sustainable energy. Fayad is selected among the best 2% of world scientists according to the Stanford University for the years 2022 and 2023, depending on scientific specialization, research path and citations.

ACADEMIC TITLES

2020-12-28	Associate Professor

ADMINISTRATIVE POSITIONS

2023-02-27 - Present	Manger of Energy and Renewable Energies Technology Center
2020-02-17 - 2020-08-23	Head of Planning Department
2020-08-23 - 2023-02-27	Head of Fuel Energy Department

PUBLICATIONS (182)

1. Assessment of Engine Performance and Characteristics of Soot and NOX Emissions in the VCR Engine Fuelled with Different Sustainable Fuel Blends
   Terra Joule Journal 2 (1), 2, 2026 | 2026 | Cited: 1
2. Investigation of the Effect of FGR on Emissions Characteristics and Performance of an Industrial Burner Operated with Diesel Fuel
   Engineering and Technology Journal 44 (1), 1-15, 2026 | 2026
3. Incorporation Effect of Sustainable Fuels and Soot Particles Characteristics on Engine Oils (SAE 5W/30) Behavior in Diesel Engine
   Terra Joule Journal 2 (1), 9, 2026 | 2026
4. Impact of injection strategies and jatropha biodiesel-diesel blends on soot and emissions
   Energy Engineering: Journal of the Association of Energy Engineers 122 (3), 929, 2025 | 2025 | Cited: 7
5. Evaluation of eco-friendly unsaturated polyester composites reinforced with agro-waste fillers
   CELLULOSE CHEMISTRY AND TECHNOLOGY 59 (9-10), 1133-1141, 2025 | 2025

6. **Effect of nano additives application and strategy of injection on particulate characteristics in engine operated with biodiesel blends**
Journal of Applied Sciences and Nanotechnology 5 (1), 14-24, 2025 | 2025 | Cited: 3

7. **Sustainable fuel sourcing for industrial oil burners through the use of biodiesel blends made from waste cooking oil**
2025

8. **Effect of nano additives application and strategy of injection on particulate characteristics in engine operated with biodiesel blends**
Journal of Applied Sciences and Nanotechnology 5 (1), 14-24, 2025 | 2025 | Cited: 3

9. **Thermal performance enhancement of a PCM-assisted cylindrical solar air heater with moisture traps for Barhi dates drying**
Case Studies in Thermal Engineering 71, 106255, 2025 | 2025 | Cited: 11

10. **Experimental Assessment on the Combustion Speed and Stabilization Limits of Ammonia-Methane Premixed Flames in an Industrial Counter Combustor**
Journal homepage: http://iieta. org/journals/ijht 43 (6), 2271-2276, 2025 | 2025

11. **Recent Advancements in Flow Boiling Enhancement Using Enhanced Microchannels: A Comprehensive Review from a Fabrication Perspective.**
International Journal of Heat & Technology 43 (6), 2025 | 2025

12. **Development of a sustainable dual-stage TEC refrigerator for reduced energy consumption**
Energy, 136593, 2025 | 2025 | Cited: 2

13. **Fuzzy Logic Technique Based on Classification Function Application in Quality Control**
Journal of Engineering and Sustainable Development 29 (1), 105-111, 2025 | 2025 | Cited: 3

14. **Impact of adding nanoparticles into the oxygenated fuel blends on engine performance and emissions characteristics of NOX and PM in diesel engines: a comprehensive review**
Results in Chemistry, 102699, 2025 | 2025 | Cited: 6

15. **System Dynamics Modeling for Predicting Nitrogen Load in Euphrates River Within Iraq**
Environmental Quality Management 35 (2), e70252, 2025 | 2025

16. **Investigate the impact of exhaust gas recirculation (EGR) rates and injection timings on the engine performance, Nox emissions and noise level emitted from a ...**
AIP Conference Proceedings 3350 (1), 060005, 2025 | 2025

17. **The effect of Tio2 nanofluid cooling on solar panels' electrical and thermal efficiencies under outdoor conditions**
AIP Conference Proceedings 3350 (1), 050016, 2025 | 2025

18. **The effect of injection timing and exhaust gas recirculation (EGR) rates on engine performance, hydrocarbon emissions, and particulate matter in a diesel engine**
AIP Conference Proceedings 3350 (1), 060001, 2025 | 2025

19. **Enhancing solar air heaters with NanoTiO2 and Paraffin**
AIP Conference Proceedings 3350 (1), 040008, 2025 | 2025

20. **Development of a sustainable dual-stage TEC refrigerator for reduced energy consumption**
Energy 328, 136593, 2025 | 2025 | Cited: 2

21. **International Journal of Energy Production and Management**
Management 10 (2), 175-182, 2025 | 2025

22. **Influence of Sophisticated Post-Injection Strategy and Oxygenated Fuel Blends on PM Characteristics and Improvement in Soot Oxidation Reactivity in Diesel Engine**
Journal of Advanced Research in Fluid Mechanics and Thermal Sciences 125 (2 ..., 2025 | 2025 | Cited: 1

23. **Effects of the Renewable Blends and Exhaust Gas Recirculation on Enhancement of NOx-PM Trade-Off in Direct Injection Diesel Engine**
Journal of Advanced Research in Fluid Mechanics and Thermal Sciences 129 (1 ..., 2025 | 2025

24. **Effect of post-injection and alternative fuels on combustion, emissions and soot nanoparticles characteristics in a common-rail direct injection diesel engine**
Energy Sources, Part A: Recovery, Utilization, and Environmental Effects 47 ..., 2025 | 2025 | Cited: 60

25. **Nanoparticle Distribution in Compression Ignition Engines Using Rapeseed Methyl Ester**
Energy Engineering: Journal of the Association of Energy Engineers 122 (4), 1249, 2025 | 2025 | Cited: 9

26. **Thermal performance enhancement of a PCM-assisted cylindrical solar air heater with moisture traps for Barhi dates drying**
Case Studies in Thermal Engineering, 106255, 2025 | 2025 | Cited: 5

27. **A novel hybrid thermoelectric generator configuration with blocking diodes to reduce power loss by preventing reverse current effects under non-uniform temperature distribution**
Renewable Energy 244, 122689, 2025 | 2025 | Cited: 3

28. **Effect of nano additives application and strategy of injection on particulate characteristics in engine operated with biodiesel blends**
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29. **Impact of Injection Strategies and Jatropha Biodiesel-Diesel Blends on Soot and Emissions.**
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30. **Strategy for enhancing energy conversion efficiency and cyclist helmet safety: A theoretical and experimental study of diverse thermoelectric generator models**
Thermal Science and Engineering Progress 55, 102998, 2024 | 2024 | Cited: 4

31. **Flow patterns in wire-on-tube heat exchangers based on various low refrigerant mass flow rates**
Transdisciplinary Research and Education Center for Green Technologies ..., 2024 | 2024 | Cited: 3

32. **Modeling nitrogen behavior in Tigris River using system dynamics approach**
Results in Engineering 24, 102880, 2024 | 2024 | Cited: 4

33. **Biodegradation of polymeric contact lenses: A comprehensive review of biological activity**
Results in Surfaces and Interfaces 17, 100338, 2024 | 2024 | Cited: 10

34. **Comparative analysis of solar cells and hydrogen fuel: a mini-review**
Results in Engineering 23, 102507, 2024 | 2024 | Cited: 35

35. **Radon gas emission from home appliances: Understanding sources, implications, and mitigation strategies**
Results in Engineering, 2024 | 2024 | Cited: 27

36. **Incorporating of TiO2 with oxygenated fuel and post-injection strategy in CRDI diesel engine equipped with EGR: A step towards lower NOX, PM and enhance soot oxidation reactivity**
Case Studies in Thermal Engineering 53, 103894, 2024 | 2024 | Cited: 51

37. **Vibration-current data fusion and gradient boosting classifier for enhanced stator fault diagnosis in three-phase permanent magnet synchronous motors**
Electrical Engineering 106 (3), 3253-3268, 2024 | 2024 | Cited: 75

38. **Interfacial engineering for advanced functional materials: surfaces, interfaces, and applications**
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39. **Effect of FIPs strategy and nanoparticles additives into the renewable fuel blends on NOX emissions, PM size distribution and soot oxidation in CRDI diesel engine**
Results in Engineering 21, 101748, 2024 | 2024 | Cited: 39

40. **Enhancing Heat Transfer: Unraveling the Dynamics of Mixed Convection in a Vertical Porous Cavity**
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41. **Optimized solar food dryer with varied air heater designs**
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42. **Radon Gas Emission from Home Appliances: Understanding Sources, Implications, and Mitigation Strategies**
Results in Engineering, 102133, 2024 | 2024

43. **Enhancement of the Properties of Solar Cells Fabricated by Cadmium Oxide Deposited on Porous Silicon**
Journal of Fuzzy Systems and Control 2 (1), 36-39, 2024 | 2024 | Cited: 4

44. **Interfacial Engineering for Advanced Functional Materials: Surfaces, Interfaces, and Applications**
Results in Engineering, 102125, 2024 | 2024

45. **Performance Improvement and Emissions Reduction with Environmentally Friendly Water-Diesel Emulsion Fuel**
Journal homepage: http://iieta. org/journals/ijcmem 12 (4), 351-359, 2024 | 2024

46. **Thermal Analysis of Wire on Tube Condenser by Exergy and Penalty Factor Methods**
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47. **WITHDRAWN: Evaluation of Grid-Connected Photovoltaic System in Harsh Weathers**
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48. **A Study of In2O3 Nano Particles for Gas Sensor Application**
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49. **Study Some Properties of Solar Cell Fabricated by Deposited Cadmium Oxide on Pours Silicon in Three Different Temperatures**
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50. **Enhancing heat transfer: unraveling the dynamics of mixed convection in a vertical porous cavity**
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54. **Enhancing heat transfer: unraveling the dynamics of mixed convection in a vertical porous cavity**
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55. **Characterization of the Thermophysical Properties of Paraffin-Based Nanocomposite Containing Alumina and Iron Oxide Nanoparticles**
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56. **Prediction of a Diffusion Flame Characteristics with the Influence of Repulsive Electromagnetic Fields**
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57. **Stability Characteristics of Water/Diesel and Biodiesel Emulsions Under the Influence of Water Dosages**
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58. **Experimental effect of CuO₂ nanoparticles into the RME and EGR rates on NO_X and morphological characteristics of soot nanoparticles**
Fuel | 2023

59. **Sand and Dust Storms' Impact on the Efficiency of the Photovoltaic Modules Installed in Baghdad: A Review Study with an Empirical Investigation**
Energies | 2023

60. **In Tube condensation: changing the pressure drop into a temperature difference for a wire-on-tube heat exchanger**
Fluid Dynamics and Materials Processing 19 (9), 2201-2214, 2023 | 2023 | Cited: 5

61. **Efficient protection of mild steel corrosion in hydrochloric acid using 3-(5-Amino-1, 3, 4-thiadiazole-2yl)-2H-chromen-2-one, a Coumarin derivative bearing a 1, 3, 4 ...**
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62. **Optimized solar food dryer with varied air heater designs**
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63. **Vibration-current data fusion and gradient boosting classifier for enhanced stator fault diagnosis in three-phase permanent magnet synchronous motors**
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64. **Incorporating of TiO2 with oxygenated fuel and post-injection strategy in CRDI diesel engine equipped with EGR: A step towards lower NOX, PM and enhance soot oxidation reactivity**
Case Studies in Thermal Engineering, 103894, 2023 | 2023

65. **Reducing Soot Nanoparticles and NOX Emissions in CRDI Diesel Engine by Incorporating TiO2 Nano-Additives into Biodiesel Blends and Using High Rate of EGR**
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66. **Diminution of air pollution from NOX and smoke/soot emitted from alcohols/diesel blends in diesel engine and influence of the exhaust gas recirculation (EGR)**
Journal of Environmental Engineering and Landscape Management 31 (1), 103 ..., 2023 | 2023 | Cited: 33

67. **A novel experimental design for free energy from the heat-gaining panel using multi-thermoelectric generators (TEGs) panel**
Case Studies in Thermal Engineering 50, 103431, 2023 | 2023 | Cited: 25

68. **Characterisation of soot agglomerates from engine oil and exhaust system for modern compression ignition engines**
International Journal of Engine Research 24 (9), 4297-4304, 2023 | 2023 | Cited: 4

69. **In Tube Condensation: Changing the Pressure Drop into a Temperature Difference for a Wire-on-Tube Heat Exchanger.**
Fluid Dynamics & Materials Processing 19 (9), 2023 | 2023 | Cited: 5

70. **Cooling of a PVT System Using an Underground Heat Exchanger: An Experimental Study**
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71. **Analysis of Entropy Generation for Horizontal Heated Cylinder by Natural Convection and Radiation**
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72. **Experimental effect of CuO2 nanoparticles into the RME and EGR rates on NOX and morphological characteristics of soot nanoparticles**
Fuel 331, 125549, 2023 | 2023 | Cited: 49

73. **Efficient protection of mild steel corrosion in hydrochloric acid using 3-(5-amino-1, 3, 4-thiadiazole-2yl)-2H-chromen-2-one, a coumarin derivative bearing a 1, 3, 4 ...**
Progress in Color, Colorants and Coatings 16 (1), 97-111, 2023 | 2023 | Cited: 23

74. **Sand and Dust Storms' Impact on the Efficiency of the Photovoltaic Modules Installed in Baghdad: A Review Study with an Empirical Investigation**
Energies 16 (9), 3938, 2023 | 2023 | Cited: 65

75. **Efficient protection of mild steel corrosion in hydrochloric acid using 3-(5-Amino-1, 3, 4-thiadiazole-2yl)-2H-chromen-2-one, a Coumarin derivative bearing a 1, 3, 4 ...**
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76. **Efficient protection of mild steel corrosion in hydrochloric acid using 3-(5-Amino-1, 3, 4-thiadiazole-2yl)-2H-chromen-2-one, a Coumarin derivative bearing a 1, 3, 4 ...**
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77. **Stability Characteristics of Water/Diesel**
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78. **Impact of Various Exhaust Gas Recirculation Ratio and Engine Operating Conditions on Emissions Characteristics and Engine Performance in Diesel Engine Fuelled by Diesel ...**
Indian Journal of Environmental Protection 43 (6), 531-537, 2023 | 2023

79. **Influence of aeration and double media filter of carbon and sand on the efficiency of river water treatment**
Indian Journal of Environmental Protection 43 (5), 467-474, 2023 | 2023

80. **Characterization of the Thermophysical Properties of Paraffin-Based Nanocomposite Containing Alumina and Iron Oxide Nanoparticles**
International Conference on Mechanical, Manufacturing and process Plant ..., 2023 | 2023 | Cited: 1

81. **Thermal Analysis of Wire on Tube Condenser by Exergy and Penalty Factor Methods**
International Conference on Mechanical, Manufacturing and process Plant ..., 2023 | 2023 | Cited: 1

82. **Influence of Burner Diameter on Premixed Flame Shape and Quenching**
Journal homepage: http://iieta. org/journals/ijcmem 11 (4), 245-250, 2023 | 2023 | Cited: 1

83. **Influence of burner diameter on premixed flame shape and quenching**
International Journal of Computational Methods and Experimental Measurements ..., 2023 | 2023 | Cited: 6

84. **Experimental investigation of dehumidification and regeneration of zeolite coated energy exchanger**
International Journal of Thermofluids 15, 100164, 2022 | 2022

85. **Investigation the combined effects of exhaust gas recirculation (EGR) and alcohol-diesel blends in improvement of NOX-PM Trade-off in compression ignition (CI) diesel engine**
IOP Conference Series: Earth and Environmental Science 961 (1), 012048, 2022 | 2022 | Cited: 10

86. **Influence of renewable fuels and nanoparticles additives on engine performance and soot nanoparticles characteristics**
CQUniversity, 2022 | 2022 | Cited: 49

87. **Effect of soot particles on lubricating oils degradation in compression ignition (CI) diesel engine**
AIP Conference Proceedings 2415 (1), 040001, 2022 | 2022 | Cited: 1

88. **Modified Nano-Fe2O3-Paraffin Wax for Efficient Photovoltaic/Thermal System in Severe Weather Conditions. Sustainability 2022, 14, 12015**
s Note: MDPI stays neutral with regard to jurisdictional claims in published ..., 2022 | 2022 | Cited: 1

89. **Impact of spectators attendance on thermal ambience and water evaporation rate in an expansive competitive indoor swimming pool**
Case Studies in Thermal Engineering 38, 102359, 2022 | 2022 | Cited: 14

90. **PM and NOX emissions amelioration from the combustion of diesel/ethanol-methanol blends applying exhaust gas recirculation (EGR)**
IOP Conference Series: Earth and Environmental Science 961 (1), 012044, 2022 | 2022 | Cited: 27

91. **Reducing the Effect of High Sulfur Content in Diesel Fuel on NOx Emissions and PM Characteristics Using a PPCI Mode Engine and Gasoline–Diesel Blends**
ACS omega 7 (42), 37328-37339, 2022 | 2022 | Cited: 58

92. **Investigation the effect of fuel injection strategies on combustion and morphology characteristics of PM in modern diesel engine operated with oxygenate fuel blending**
Thermal Science and Engineering Progress 35, 101476, 2022 | 2022 | Cited: 44

93. **Influence of post-injection strategies and CeO2 nanoparticles additives in the C30D blends and diesel on engine performance, NOX emissions, and PM ...**
Particulate Science and Technology 40 (7), 824-837, 2022 | 2022 | Cited: 58

94. **Enhancing the fuel saving and emissions reduction of light-duty vehicle by a new design of air conditioning worked by solar energy**
Case Studies in Thermal Engineering 30, 101798, 2022 | 2022 | Cited: 50

95. **Dust impact on photovoltaic/thermal system in harsh weather conditions**
Solar Energy 245, 308-321, 2022 | 2022 | Cited: 108

96. **Nano-iron oxide-ethylene glycol-water nanofluid based photovoltaic thermal (PV/T) system with spiral flow absorber: An energy and exergy analysis**
Energies 15 (11), 3870, 2022 | 2022 | Cited: 35

97. **Modified Nano-Fe2O3-Paraffin Wax for Efficient Photovoltaic/Thermal System in Severe Weather Conditions**
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98. **Impact of spectators attendance on thermal ambience and water evaporation rate in an expansive competitive indoor swimming pool**
Case Studies in Thermal Engineering, 102359, 2022 | 2022 | Cited: 14

99. **Flame stability and equivalence ratio assessment of turbulent partially premixed flames**
Fuel 326, 125107, 2022 | 2022 | Cited: 12

100. **Experimental Investigation of Dehumidification and Regeneration of Zeolite Coated Energy Exchanger**
International Journal of Thermofluids, 100164, 2022 | 2022 | Cited: 15

101. **Influence of fuel injection pressure and RME on combustion, NOx emissions and soot nanoparticles characteristics in common-rail HSDI diesel engine**
International Journal of Thermofluids 15, 100173, 2022 | 2022 | Cited: 70

102. **Influence of fuel injection pressure and RME on combustion, NO emissions and soot nanoparticles characteristics in common-rail HSDI diesel engine**
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106. **Study the Behaviour of Chest Freezer Working with R134a and R600a Under Pull Down and Loading States**
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107. **Optimization of mechanical wear resistance for recycled (Al-Mg-Si) reinforced SiC composite material using PM method**
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108. **Emissions Characteristics and Engine Performance from the Interaction Effect of EGR and Diesel-Ethanol Blends in Diesel Engine.**
International Journal of Renewable Energy Development 11 (4), 2022 | 2022 | Cited: 33

109. **Ultralow Sulfur Diesel and Rapeseed Methyl Ester Fuel Impact on Performance, Emitted Regulated, Unregulated, and Nanoparticle Pollutants**
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110. **Investigation the combined effects of exhaust gas recirculation (EGR) and alcohol-diesel blends in improvement of NOX-PM Trade-off in compression ignition (CI) diesel engine**
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International Journal of Renewable Energy Development 11 (4), 991, 2022 | 2022 | Cited: 34

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114. **Emissions Characteristics and Engine Performance from the Interaction Effect of EGR and Diesel-Ethanol Blends in Diesel Engine**
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116. **Modified Nano-Fe₂O₃-Paraffin Wax for Efficient Photovoltaic/Thermal System in Severe Weather Conditions**
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117. **Reducing the Effect of High Sulfur Content in Diesel Fuel on NOx Emissions and PM Characteristics Using a PPCI Mode Engine and Gasoline-Diesel Blends**
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118. **Investigation of the impact of injection timing and pressure on emissions characteristics and smoke/soot emissions in diesel engine fuelling with soybean fuel**
Journal of Engineering Research 9 (2), 296-307, 2021 | 2021 | Cited: 34

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122. **Influence of environment-friendly fuel additives and fuel injection pressure on soot nanoparticles characteristics and engine performance, and nox emissions in CI Diesel Engine**
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123. **Effect of ZnO nanoparticles deposition on porous silicon solar cell**
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126. **Engine performance and PM concentrations from the combustion of Iraqi sunflower oil biodiesel under variable diesel engine operating conditions**
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127. **Nanoscale oscillator on the base of single-walled carbon nanotube with internal fullerenes C36 and C80**
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128. **Investigating the influence of oxygenated fuel on particulate size distribution and NOX control in a common-rail diesel engine at rated EGR levels**
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129. **Effect of renewable fuel and injection strategies on combustion characteristics and gaseous emissions in diesel engines**
Energy Sources, Part A: Recovery, Utilization, and Environmental Effects 42 ..., 2020 | 2020 | Cited: 52

130. **Role of different antioxidants additions to renewable fuels on NOX emissions reduction and smoke number in direct injection diesel engine**
Fuel 279, 118384, 2020 | 2020 | Cited: 66

131. **Influence of alternative fuels on combustion and characteristics of particulate matter morphology in a compression ignition diesel engine**
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Progress in Biomedical Optics and Imaging - Proceedings of SPIE | 2020

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Engineering and Technology Journal, 16, 2019 | 2019 | Cited: 10

136. **Theoretical Investigation of Buoyancy-driven Cavity Flow by Using Finite Element**
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137. **Interactions between aftertreatment systems architecture and combustion of oxygenated fuels for improved low temperature catalysts activity**
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138. **Manipulating modern diesel engine particulate emission characteristics through butanol fuel blending and fuel injection strategies for efficient diesel oxidation catalysts**
Applied Energy 190, 490-500, 2017 | 2017 | Cited: 130

139. **Particulate Matter (PM) characteristics from compression ignition diesel engines operated by renewable fuels**
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