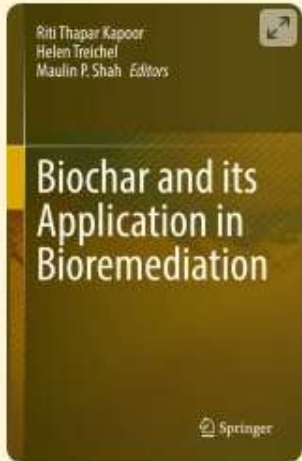


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Application of Biochar for Wastewater Treatment

Karthik V., Selvakumar Periyasamy, Beula Isabel J., Kalaivani S., Tatek Temesgen

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Restoration of Contaminated Agricultural Soils

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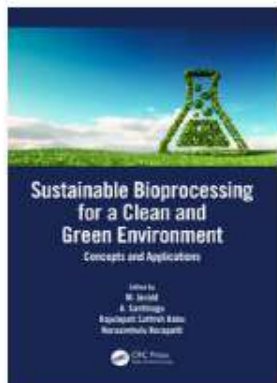
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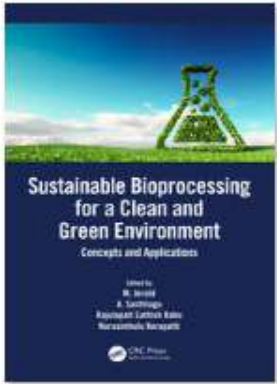
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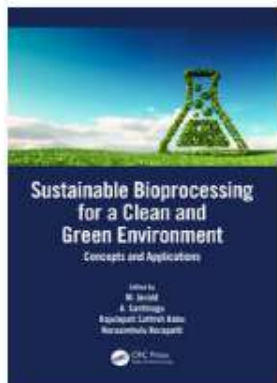
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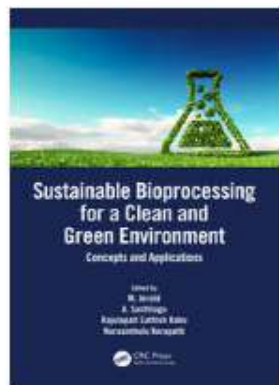
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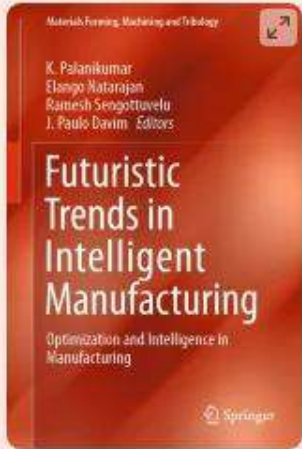
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This book covers key areas of science and technology research. The contributions by the authors include wireless Communication, Reed-Solomon codes, Bose-Chaudhuri-Hocquenghem codes, fractal education/consciousness, scientific orthodoxy, haric level, real gas, supercritical fluid, bond energy, equilibrium constant, bioterrorist, anthrax spores, bacteriological weapons, phonics method, fuzzy logic controller, buck boost converter, onion planter, intercropping system, weed management, dry matter production, soil fertility, cropping systems, pressure gradient, begs and brill traverse, gas liquid ratio, liquid holdup, multiphase fluid flow, reservoir modelling, ensemble Kalman filter, genetic algorithm. This book contains various materials suitable for students, researchers and academicians in the field of science and technology.

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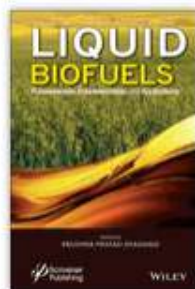
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Abstract

Virtual instrumentation is defined as the combination of measurement and control the hardware and software with industry-standard computer technology to create user-defined instrumentation systems. In this paper, the two-input fuzzy logic controller (FLC) for buck boost converter output-voltage regulation is proposed by using LabVIEW. Here the output voltage has been used as a closed loop feedback to determine the output error (e) and the change in error (?e) as two inputs to the controller. The elements of the buck boost converter as inductance and capacitor have been selected to insure continuous operating mode (CCM) and low output voltage ripple. The experimental results show that the FLC has a good output voltage response compared with PID controller response. This research has successfully showed that LabVIEW and Fuzzy Logic controller can be applied to develop a system for selecting the modes of controller.

Keywords: Fuzzy logic controller (FLC); LabVIEW; NI DAQ; buck boost converter; duty cycle; MOSFET



Liquid Biofuels: Fundamentals, Characterization, and Applications

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First published: 7 May 2021

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Compiled by a well-known expert in the field, *Liquid Biofuels* provides a profound knowledge to researchers about biofuel technologies, selection of raw materials, conversion of various biomass to biofuel pathways, selection of suitable methods of conversion, design of equipment, selection of operating parameters, determination of chemical kinetics, reaction mechanism, preparation of bio-catalyst: its application in bio-fuel industry and characterization techniques, use of ... [Show all](#) ▾

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Dulari Hansdah, S. Murugan

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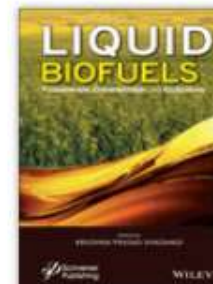
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Summary

Oxidation of biofuel affects the fuel quality heavily by an increase in the production of acids and other degradation products from the biofuels. This can be controlled by adding antioxidants for the biofuel to be oxidative stability by prolonging the storage. In this research, the experiments were conducted for performance and emission parameters in CI engine using ND, CIB5, CIB10, CIB15 and, CIB20 with and without the addition of antioxidant (1000ppm TBHQ) as fuel. The addition of TBHQ seems to perform better with lower BSFC and higher BTE with 12.5% and 2.9%, respectively. Also, CIB+TBHQ fuelled engine emission has increased CO, HC, NO_x and decreased CO₂ with 5%, 3%, 2.3% and 4%, respectively. NLRM was also developed for the CIB+TBHQ for easy prediction of the performance and emission parameters with a maximum absolute average error of 9.06% and minimum absolute error of 2.43%. An artificial neural network was also developed



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