EuroSciCon

E-POSTERS

Abstracts

EuroScicon Conference on

Applied Science, Biofuels & Petroleum Engineering

November 12- 13, 2018 | Athens, Greece

EuroSciCon

EuroScicon Conference on

Applied Science, Biofuels & Petroleum Engineering

November 12-13, 2018
Athens, Greece

Atabek E Atamuratov et al., Int J Appl Sci Res Rev 2018, Volume: 5
DOI: 10.21767/2394-9988-C1-002

NEW FAST METHOD FOR READING CHARGE BIT STORED IN MNOSFET

Atabek E Atamuratov[1], Z A Atamuratova[1] and A Yusupov[2]

[1]Urganch State University, Uzbekistan
[2]Tashkent University of Information Technologies, Uzbekistan

The reading of data in nonvolatile memory elements can be achieved by using scanning microscopy. Though the scanning microscopy has high spatial resolution, they have sufficient lack for application that is connected with the scan (or reading) speed. For them, the scan rate is limited by the feedback response time. Besides, almost all the scanning microscopes have expensive and complex electromechanical components to move tip or sample and optical systems (laser, photodetector) for registration. In this work with using simulation, it is investigated the possibility to detect (to read) localised charge (charge bit) trapped in metal-nitride-oxide-semiconductor field effect transistor (MNOSFET), without using the movable probe, by applying scanning voltage to source-base (or drain-base) transition. It allows to reach enough reading rate. At applying saw-tooth sweep voltage, the scan rate depend on the period of sawtooth voltage. The trapped localized charge affect to capacitance of the lateral source-substrate (or drain-substrate) transition of MNOSFET. This effect is shown as a jump of the capacitance in the lateral C-V dependence (Fig.1a). To experimental determination, the jump voltage (V_{jump}), it is expedient to calculate the derivative of the change of the capacitance with respect to the bias voltage (V_{bias}), d(C)/dV, at all voltages along voltage axis of the C-V dependence. In this derivative, the V_{jump} will be reflected as voltage corresponding to an extreme point of the derivative curves (Fig.1b). The Vjump strongly depends on position and linear size of charge bit as well as on substrate doping concentration. At appropriate conditions, the applying of the saw-tooth voltage may be used as scanning to read bit information saved in the form of localized charge trapped in silicon nitride layer. In this case, for example, the channel of transistor can be considered as word line in random access read only nonvolatile memory element

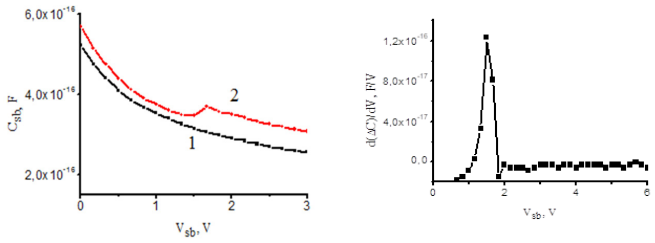

Figure 1: (a) C-V dependence of the source-base transition without (1) and with (2) localised charge embedded in silicon nitride layer of MNOSFET and (b) derivative d(□C)/dV

Biography

Atabek E Atamuratov has completed his Specialist Diploma in Physics in 1983 from Moscow State University and PhD from Uzbek National University in 1993. He is the Docent of Physics department of Urganch State University. He has published more than 15 papers in reputed journals. He is Reviewer of *International Journal of Electronics*. At Urganch State University, he leads the group of electronics and modelling of semiconductor devices. The group has several national and international research projects. He is an Advisor for 2 PhD students and 5 MS student at the Physics department of Urganch State University.

atabek.atamuratov@yahoo.com
atabek.atamuratov@urdu.uz

EuroSciCon

EuroScicon Conference on

Applied Science, Biofuels & Petroleum Engineering

November 12-13, 2018
Athens, Greece

A. Abdikarimov et al., Int J Appl Sci Res Rev 2018, Volume: 5
DOI: 10.21767/2394-9988-C1-002

SIMULATION STUDY OF SHORT CHANNEL EFFECTS IN LOW POWER FINFETS WITH DIFFERENT BODY SHAPE AND GEOMETRIES

A. Abdikarimov[1], Z A Atamuratova[1] and A Yusupov[2]

[1]Urganch State University, Uzbekistan
[2]Tashkent University of Information Technologies, Uzbekistan

One of the ways to reach low power consumption in semiconductor devices is the decreasing sizes. Metal-oxide-semiconductor field effect transistor (MOSFET) scaling induces different effects that tend to degrade device performance. Among them more important ones is technological variability of parameters and short channel effects (SCEs). One of types of variability is the narrowing of the body which might appear in multiple-gate vertical field effect transistor (FinFET). In this work, short channel effect such as drain induced barrier lowering (DIBL) and sub threshold swing (SS) is compared for silicon on insulator (SOI)-FinFETs with different silicon body shapes and geometries. It was considered the original device, which is straight without narrowing at the top and a set of devices that exhibit the mentioned narrowing, up to the extreme case where the top of the gate has no surface and so the body cross-section is a triangle. We have studied five different variations from the original geometry of a 25 nm gate length SOI-FinFET device with oxide thickness 1.5 nm. P-type channel has doping concentration of 1015 cm-3 and n-type S/D areas are doped with concentrations of 1020 cm-3. Silicon body of the device has height and width of 30 nm and 12 nm accordingly. Simulation results show DIBL effect as well as SS of the considered FinFETs depends on body top thickness and is increased with increasing of the body top thickness. Thickness of back oxide (BOX), gate oxide overlapping and extension of gate width influence to DIBL and SS. DIBL and SS is increased with increasing the BOX thickness, while DIBL is decreased with increasing the length of BOX. With extension of the gate, DIBL as well as SS is decreased

Biography

Azamat Abdikarimov has completed his BS and MS diploma in Physics in 2004 and 2006 correspondingly from Urganch State University. He is the PhD student at Physics department of Urganch State University. In 2012-2014, he had conducted researches in the group of Computational Electronics in University Santiago de Compostella (Spain). He has published 4 papers in reputed journals. At Urganch State University, he is Member of the group of electronics and modelling of semiconductor devices and participates in several national and international research projects. He is Advisor for 4 BS students at the Physics department of Urganch State University.

abdukarimov.azamat@rambler.ru

EuroSciCon

EuroScicon Conference on

Applied Science, Biofuels & Petroleum Engineering

November 12-13, 2018
Athens, Greece

M Khalilloev et al., Int J Appl Sci Res Rev 2018, Volume: 5
DOI: 10.21767/2394-9988-C1-002

SIMULATION OF DIBL EFFECT AND SUB-THRESHOLD SWING IN LOW POWER JUNCTIONLESS MOSFETS WITH DIFFERENT GEOMETRIES

M Khalilloev[1], A Atamuratov[1] and A Yusupov[2]

[1]Urganch State University, Uzbekistan
[2]Tashkent University of Information Technologies, Uzbekistan

Recently, nanoscale junctionless metal-oxide-semiconductor field effect transistor (JLMOSFET) have been proposed to avoid doping concentration gradient and therefore diffusion during thermal processing steps which needs in forming source and drain areas in normal MOSFET. Though the scaling of JLMOSFET, particularly, result in the low power consumption, alongside with it, the decreasing of sizes to nanometer scale induces degradation effects such as technological variability of parameters, drain induced barrier lowering (DIBL) effect and increasing of subthreshold swing (SS). In this work, the short channel effect such as DIBL effect and SS is compared for JLMOSFETs with different silicon body shapes and geometries. It was considered the original device, which is straight without narrowing at the top and a set of devices that exhibit the mentioned narrowing, up to the case where the top of the gate has no surface and so the body cross-section is a triangle. We have studied different variations from the original geometry of a 10 nm gate length JLMOSFET device with equivalent oxide thickness 0.35 nm. n-type channel has doping concentration 8 10^{19} cm-3 and p-type poly silicon gate are doped with concentration 6 10^{19} cm^{-3}. Silicon body of the device has height and width of 5 nm and 5 nm respectively. Simulation results show DIBL effect as well as SS of the considered JLMOSFETs depends on body top thickness and is increased with increasing of the body top thickness. Minimal DIBL and SS are shown for device with the triangle cross-section body. Lateral extension Wext of the poly silicon gate also has influence to DIBL and SS. However, this influence is nonmonotonic. Up to 2 nm of Wext DIBL as well as SS is increased, however at higher W_{ext} it is again slowly decreased

Biography

Mahkam Khalilloev has completed his BS diploma in 2012 from Urganch State University and MS diploma in Radio engineering in 2014 from Uzbek national university. He is pursuing his PhD at Physics department of Urganch State University. He has published one paper in reputed journals. At Urganch State University, he is Member of the group of electronics and modelling of semiconductor devices and participates in several national and international research projects. He is Advisor for two BS student at the Physics department of Urganch State University.

x-mahkam@mail.ru

EuroSciCon

EuroScicon Conference on

Applied Science, Biofuels & Petroleum Engineering

November 12-13, 2018
Athens, Greece

Sharanabasappa Saddu et al., Int J Appl Sci Res Rev 2018, Volume: 5
DOI: 10.21767/2394-9988-C1-002

PERFORMANCE AND EMISSION PARAMETERS OF COMPRESSION-IGNITION (CI) ENGINE FUELLED WITH WASTE OR USED TEMPLE OIL BIODIESEL AT BLENDS

Sharanabasappa Saddu[1], Sangshetty Kivade[2] and Ramesha Devarahalli[3]

[1]Research Scholar, VTU Belagavi, Karnataka, India (VTU), India
[2]Basavakalyan Engineering College, India
[3]University Visvesvaraya College of Engineering (UVCE), India

The biodiesel as a renewable fuel has been recognized as one of the best alternative fuel for diesel engine in the present world. Ignition pressure is the major influencing parameter for the performance and emission of diesel engine. Biodiesel from waste or used temple oil is mainly obtained cheaply from trans-esterification process as compared to biodiesel produced from various resources. Due to many mythological and religious beliefs, thousands of devotees pour oil over the idols in many temples in India, such as Hanuman and Shani temples. Most of the poured oil of the temples get wasted. In this study, the investigation of performance and combustion characteristics of biodiesel of used temple oil is focused with different blends of biodiesel like B100, B40, B30 and B20 in Compression Ignition engine, operating at injection opening pressure (IOP) of 200bar

Biography

Sharanabasappa Saddu is working at GovernmentITI Gurumathakal, Karnataka, India.

sadduss@rediffmail.com

EuroSciCon

EuroScicon Conference on

Applied Science, Biofuels & Petroleum Engineering

November 12-13, 2018
Athens, Greece

Noori M. Cata Saady et al., Int J Appl Sci Res Rev 2018, Volume: 5
DOI: 10.21767/2394-9988-C1-002

THEORETICAL METHANE YIELDS OF FEEDSTOCK

Noori M. Cata Saady[1, 2], Adhersh Radhakrishnan[1], Kovasky Alfonso Buezo[1],

[1] Faculty of Engineering and Applied Science, Memorial University of Newfoundland, St. John's, NL, Canada, A1B 3X5

[2]Corresponding author: nsaady@mun.ca

Biogas is produced in anaerobic digestion, a bioprocess that contributes to addressing the climate change impacts. It converts various biodegradable organic materials to methane; a combustible gas, which is used as fuel. Methane yield of any digestible organic material is of prime importance during projects development, and feasibility and economic analysis. A question faces any biogas developer is how much methane will be produced upon digesting a specific substrate. The purpose of this poster is to create a data-bank list of the methane yields of various organic feedstock based on their predicted theoretical methane yield (TheoMY) by Buswell and Mueller's equation (BM Eq.) using their empirical molecular formulae, and their experimentally determined methane yield (ExpMY) as it has been published in the literature. Differences exist between the TheoMY and ExpMY because of the assumptions of the Buswell and Mueller's equation and variation of the experimental conditions. Correlation of TheoMY and the adjusted TheoMY (i.e., the TheoMY after its correction to ash and lignin fractions) was strong (R^2=0.769)

Biography

Dr. Saady is an assistant professor at Memorial University of Newfoundland. He is specialized in bioprocesses and biotechnologies converting organic waste into biofuel and bioenergy using wet and dry anaerobic digestion. He received B.Sc. in Civil Engineering and M.Sc. in Environmental Engineering from the University of Technology, Iraq, and Ph.D. from University of Windsor, ON. He worked at the Dairy and Swine Research and Development Centre, Agriculture and Agri-food Canada, where he investigated livestock and agricultural waste management. He received prestigious scholarships including three NSERC scholarships. He published 30 research articles, two book's chapters, and presented in 10 international conferences. He served as an Editor-in-Chief for Advances in Recycling & Waste Management Journal published by OMICS and as editor for IJEWM and IJEE published by Inderscience. He served on organizing, program or scientific committees for more than 18 international conferences.

nsaady@mun.ca

ACCEPTED

Abstracts

EuroScicon Conference on

Applied Science, Biofuels & Petroleum Engineering

November 12-13, 2018 | Athens, Greece

EuroSciCon

EuroScicon Conference on

Applied Science, Biofuels & Petroleum Engineering

November 12-13, 2018
Athens, Greece

Int J Appl Sci Res Rev 2018, Volume: 5
DOI: 10.21767/2394-9988-C1-003

DESIGN GUIDELINES FOR IN-PLANE FREE VIBRATION AND DYNAMIC STABILITY OF HIGH SPEED ROTATING DISCS

Hamid R Hamidzadeh and Ehsan Sarfaraz
Tennessee State University, USA

Analytical methods are presented for determination of free vibration analysis of high speed viscoelastic rotating discs. In addition, the effects of embedded material on the discs for the dynamic stability and the development of a design guideline for these systems are investigated. The analysis is conducted by employing the two dimensional elastodynamic theories and the viscoelastic material for the medium is allowed by assuming complex elastic moduli. The general governing equations of motion are derived and their solutions are established. In this study, different boundary conditions such as: free-free, fixed-free and free-fixed for annular rotating discs are considered. Moreover, the influences of hysteretic material damping on dimensionless natural frequencies and modal loss factors of the rotating discs are also determined. Furthermore, the influence of attached materials on the inner or outer sides of discs for controlling the natural frequencies and critical speeds are presented. The dimensionless results for natural frequencies, various modal displacements and stresses, and critical speeds are presented for a wide range of rotational speeds and radius ratios. To verify the computed results, results for some cases were compared to previously established results. These results are essential for design of such discs; thus, they are provided in tables and are depicted in a number of design charts.

hhamidzadeh@tnstate.edu

EuroSciCon

EuroScicon Conference on

Applied Science, Biofuels & Petroleum Engineering

November 12-13, 2018
Athens, Greece

Int J Appl Sci Res Rev 2018, Volume: 5
DOI: 10.21767/2394-9988-C1-003

GXP/GMP AND ITS CONSEQUENCES FOR DOCUMENTATION AND INFORMATION TECHNOLOGY SYSTEMS

Eleonora Babayants
Galaxy Consulting, USA

Documentation is a critical tool for ensuring GxP/GMP compliance. This is what GMP states about document control: each manufacturer shall establish and maintain procedures to control all documents that are required. In the regulated environment which must be GxP/GMP compliant, document control is the cornerstone of the quality system. It is so important that if an external audit identifies deficiencies in the document control system, the entire organization can be shut down. There are also GMP requirements for information technology. For a drug to be produced in a GxP/GMP compliant manner, some specific information technology practices must be followed. Computer systems involved in the development, manufacture, and sale of regulated product must meet certain requirements. Change control within quality management systems (QMS) and information technology (IT) systems is a formal process used to ensure that changes to a product or system are introduced in a controlled and coordinated manner. In the regulated industries, manufactures are required to use a change control procedure. In this presentation, I will discuss the connection between GxP/GMP and document control. I will describe details of document control procedures and the role of quality assurance in the documentation systems. I will review GMP requirements for information technology and how computer systems including documentation management systems must meet GxP/GMP requirements. I will also review change control procedure and how it should be used in GxP/GMP environment.

eleonora@galaxyconsulting.net

EuroSciCon

EuroScicon Conference on

Applied Science, Biofuels & Petroleum Engineering

November 12-13, 2018
Athens, Greece

Int J Appl Sci Res Rev 2018, Volume: 5
DOI: 10.21767/2394-9988-C1-003

NOVEL ELECTROLYTE-LAYER FREE FUEL CELL TECHNOLOGY AS AN ALTERNATIVE OF CONVENTIONAL FUEL CELL TECHNOLOGY

Muhammad Afzal
KTH Royal Institute of Technology, Sweden

Energy has been one of the top challenges to the world for several decades. Energy technologies producing pollution cause global warming and have forced the policy makers to focus on alternate energy technologies which can be environment friendly. Considering several renewable energy conversion technologies, fuel cell is one of the most efficient technologies to supply green energy for stationary and automotive applications. Among many fuel cell families, solid oxide fuel cell (SOFC) is very attractive because of its potential advantages including fuel flexibility and use of non-noble metals for electrode reactions. However, conventional SOFC with high operating temperatures (750-1000 °C) faces problems of materials degradation, materials selection and result in high operational and capital costs. In such a situation, lowering of SOFC operational temperature has been a main objective for last two decades. To reach this goal, materials having sufficient ionic conductivity and corresponding electrodes catalytic activities at low temperatures are required. Currently, three in one based electrolyte-layer free fuel cell (EFFC) technology has been investigated as an alternative of conventional fuel cell. Three in one is a mixture of semiconductor and ionic materials with specific combinations which can induce ion conducting properties and changes in band structure resulting in fast charge transfer and redox processes for electrochemical catalyst functions. EFFC devices have demonstrated 500-1000 mW/cm2 results below 600 °C. Upper hand of new technology is that it is easy to fabricate and handle during device operation. This invention has made promising applications for new generation fuel and solar energy conversions.

afzalm@kth.se

EuroSciCon

EuroScicon Conference on

Applied Science, Biofuels & Petroleum Engineering

November 12-13, 2018
Athens, Greece

Int J Appl Sci Res Rev 2018, Volume: 5
DOI: 10.21767/2394-9988-C1-003

EXPLORING BIOLOGICAL AND CHEMICAL PROPERTIES OF OROXYLUM INDICUM (L.) KURZ

M Oliur Rahman[1], Nahid Sultana[2], Md Abdur Rashid[1] and Md Abul Hassan[1]

University of Dhaka, Bangladesh
[2]Jagannath University, Bangladesh

The multi-faced biological activities, viz. antioxidant, cytotoxic and antimicrobial potential of methanol extract and its different soluble partitionates of root bark of medicinally important plant Oroxylum *indicum* were evaluated. In the antioxidant assay by DPPH, free radical scavenging method, crude methanolic extract of root bark of O. *indicum* revealed the highest free radical scavenging activity with IC50 values of 9.29±0.28 µg/ml. The highest amount of phenolics (15.75±0.34 mg of GAE/gm of extractives) was observed in crude methanolic extract of root bark. The chloroform and dichloromethane soluble fraction of crude extract of root bark of methanolic extract of O. *indicum* displayed the highest cytotoxic potential having LC50 values of 0.63±0.17 µg/ml and 0.67±0.15 µg/ml respectively. In case of antibacterial screening, dichloromethane soluble fraction of methanolic extract of root bark of O. *indicum* showed antibacterial activity with the highest zone of inhibition of 16.0 mm observed in Bacillus subtilis. Four compounds were isolated from dichloromethane soluble fraction of methanol extract of root bark of O. *indicum* and the structure of the purified compounds were elucidated by extensive analysis of their high resolution 1H spectroscopic data as well as by comparison with published values. The isolated compounds were: i) AR-O17 as 5,7-dihydroxy-3-methoxyflavone, ii) AR-O18 as 7-methoxy-3,5 dihydroxyflavone, iii) AR-O23 as 5,7-dihydroxyflavone (Chrysin) and iv) AR-O30 as 3,4',5,7-tetrahydroxyflavonol (Kaempferol). The 1H NMR of AR-017 displayed two sharp singlets at δ 4.05 (3H) and 13.01 (1H). The ^{13}C NMR spectrum of the compound AR-O18 exhibited 13 signals for 16 carbons. The 1H NMR spectrum of the compound AR-O23 demonstrated three sharp singlets at δ 6.24 (1H), 6.49 (1H) and 6.75 (^{1}H), while the ^{1}H NMR (400 MHz, CDCl3) spectrum of AR-O30 presented characteristic signals for a flavonol moiety.

prof.oliurrahman@gmail.com
oliur.bot@du.ac.bd

EuroSciCon

EuroScicon Conference on

Applied Science, Biofuels & Petroleum Engineering

November 12-13, 2018
Athens, Greece

Int J Appl Sci Res Rev 2018, Volume: 5
DOI: 10.21767/2394-9988-C1-003

EFFICIENCY ENHANCEMENT OF THE MONO CRYSTALLINE SOLAR PHOTOVOLTAIC PANEL USING SMART DUAL AXIS TRACKING SYSTEM

Fazal Muhammad
BUITEMS, Pakistan

Solar energy is based on photovoltaic effect; it is one of the methods of converting the light radiations into direct current. The demand of solar energy has been increased in recent years. The PV systems can be used either as a stand-alone system or as a large solar system that is connected to the electricity grids. Sun emits $3x10^{24}$ joule of energy on every moment and energy reaches to earth is $1.7x10^{17}$ joule, here we are trying to consume more energy from the sun using solar panel. In order to increase the efficiency of generated electrical energy from solar panels, the solar panels have to be placed perpendicular to the sun. Thus the tracking of the sun position and positioning of the PV systems are important. The main aim of our project is to design such a system which automatically rotates or moves with sun's position. The dual axis tracking system will move the solar panel in either axis i.e. X-axis or Y-axis so that on every moment the solar panel is perpendicular to the sun to increase the efficiency of solar panels. Photo voltaic systems are modern technology of electricity generation from the sun it can be use anywhere specially in low horizon areas and shade free areas these areas basically are the remote areas, generation of electricity basically increase with these type of area so, they required a remote monitoring system for PV plants to improve their efficiency and productivity. The monitoring system is so designed that it measures the solar panel parameters like voltage, current, power and temperature for a solar panel array. The data collected at the PV plant is send to microcontroller and then to GSM module for monitoring purpose.

fazalkhan00@gmail.com

EuroSciCon

EuroScicon Conference on

Applied Science, Biofuels & Petroleum Engineering

November 12-13, 2018
Athens, Greece

Int J Appl Sci Res Rev 2018, Volume: 5
DOI: 10.21767/2394-9988-C1-003

USE OF MULTIPLE-VELVETS WOVEN TEXTILES FOR NOVELTY MULTI-COMPONENT TESTING THE THICKNESS OF ELECTRONIC APPLICATIONS

Elsayed Ahmed Elnashar
Kaferelsheikh University, Egypt

In this paper, the use of woven textile structures for multi-component testing of the thickness of electronic circuits is investigated. The advantages and limitations of single and multiple multiple-velvets woven textiles and novel woven structures are analysed. The use of textile velvets woven textiles based conducting yarn and its characteristics are discussed. Details of the development of touch control woven fabric velvets woven textiles are illustrated. The developed multi-component testing the thickness of electronic are fully flexible structures retaining the unique characteristics of textile fabrics, Novel solutions for improving the connectivity of conducting yarns in woven structures; a method and device for the insertion of flexible electronic circuits in woven fabric pockets are also discussed. Results of testing and evaluation of the performance of the fabric multi-component testing the thickness of electronic are also presented.

smartex@kfs.edu.eg

EuroSciCon

EuroScicon Conference on

Applied Science, Biofuels & Petroleum Engineering

November 12-13, 2018
Athens, Greece

Int J Appl Sci Res Rev 2018, Volume: 5
DOI: 10.21767/2394-9988-C1-003

ANALYSIS OF REACTION CROSS-SECTION PRODUCTION IN NEUTRON INDUCED FISSION REACTIONS ON URANIUM ISOTOPE USING COMPUTER CODE COMPLET

Yihunie Hibstie Asres[1], Manny Mathuth[1] and Marelgn Derso Birhane[2]

[1]Center for Applied Radiation Science and Technology-North West University, South Africa
[2]Natural and Computational Science College-Debre Markos University, Ethiopia

This study describes the energy production processes in the neutron induced fission reactions of uranium isotope on projectile energy range of 1 MeV to 100 MeV. In such fission reactions of ^{235}U within nuclear reactors, much amount of energy would be released as a product that able to satisfy the needs of energy to the world wide without polluting processes as compared to other sources. The main objective of this work is to transform a related knowledge about energy production process in the neutron-induced fission reactions on 235U through describing, analysing and interpreting the theoretical results of the cross sections obtained from computer code COMPLET by comparing with the experimental data obtained from EXFOR. The cross section value of $^{235}U(n,2n)^{234}U$, $^{235}U(n,3n)^{233}U$, $^{235}U(n,)^{236}U$, $^{235}U(n,f)$ are obtained using computer code COMPLET and the corresponding experimental values were browsed by EXFOR, IAEA. The theoretical results are compared with the experimental data taken from EXFOR data bank. Computer code COMPLET has been used for the analysis with the same set of input parameters and the graphs were plotted by the help of spreadsheet and Origin-8 software. This comparison of the gathered data was analysed and interpreted with tabulation and graphical descriptions. The quantification of uncertainties stemming from both experimental data and computer code calculation plays a significant role in the final evaluated results. The obtained calculated results were compared with the experimental data taken from EXFOR in the literature. Good agreement was found between the experimental and theoretical data, while in others considerable derivations were observed.

yihuniehibs@gmail.com

EuroSciCon

EuroScicon Conference on

Applied Science, Biofuels & Petroleum Engineering

November 12-13, 2018
Athens, Greece

Int J Appl Sci Res Rev 2018, Volume: 5
DOI: 10.21767/2394-9988-C1-003

THE EFFECT OF DIFFERENT METHODS OF EXTRACTION OF ESSENTIAL OILS AND THEIR COMPONENTS FROM AROMATIC PLANTS IN IRAN

Mohammadbagher Rezaee[1] and Y Rezaee[2]

[1]Research Institute of Forests and Rangelands (RIFR), Iran
[2]Research Department of Food Science and Technology-Shahid Beheshti University of Medical Sciences, Iran

Essential oils have been used for more than 50 centuries for natural remedies for various conditions. The Iranian states have a very rich flora with a variety of indigenous species. Essential oils are substances extracted from flowers, herbs, seeds, bark and buds i.e. rose, lemongrass, caraway, cinnamon and clove respectively. These oils are often used for their flavour and their odoriferous properties, in medicines, and cosmetics. There are wide number of distillation methods as steam- and hydro-distillation. When steam passes through the herb material the vapour allows passing through condenser and oil is collected in separating funnel and separated. Composition data for Rosa *damasena*, traditionally used for treatment of infectious diseases and rose hip were assayed for the fatty acids. In this research, the volatile oil obtained by hydrodistillation of the petals rich in sesquiterpenes and 19 sesquiterpenes, 29 aliphatic, β-citronellol, geraniol and phenyl ethyl alcohol as the main components and next, *Tanacetum partenium* in the flowering stage, was camphor and bornyl acetate, camphene, and essential oils Eucalyptus *camaldulensis*, contain α-pinene, 1,8-cineol and pinocarveol-trans. The composition of the oil can vary depending on the time of day, season, geographic location, method and duration of distillation, year grown, and the weather. Oil were studied and found the oil can be used as biochemical, anti-bacterial and to control the pest.

mb.rezaee@gmail.com

EuroSciCon

EuroScicon Conference on

Applied Science, Biofuels & Petroleum Engineering

November 12-13, 2018
Athens, Greece

Int J Appl Sci Res Rev 2018, Volume: 5
DOI: 10.21767/2394-9988-C1-003

SUSTAINABLE DEVELOPMENT IN GREEN ENERGIES AND THE ENVIRONMENT

Energy Research Institute (ERI), United Kingdom

Author name - A M Omer

The move towards a de-carbonised world, driven partly by climate science and partly by the business opportunities it offers, will need the promotion of environmentally friendly alternatives, if an acceptable stabilisation level of atmospheric carbon dioxide is to be achieved. This requires the harnessing and use of natural resources that produce no air pollution or greenhouse gases and provides comfortable coexistence of human, livestock, and plants. This article presents a comprehensive review of energy sources, and the development of sustainable technologies to explore these energy sources. It also includes potential renewable energy technologies, efficient energy systems, energy savings techniques and other mitigation measures necessary to reduce climate changes. The article concludes with the technical status of the ground source heat pumps (GSHP) technologies.

abdeenomer2@yahoo.co.uk

EuroSciCon

EuroScicon Conference on

Applied Science, Biofuels & Petroleum Engineering

November 12-13, 2018
Athens, Greece

Int J Appl Sci Res Rev 2018, Volume: 5
DOI: 10.21767/2394-9988-C1-003

HELIUM GAS IN THE PETROLIFEROUS TUBE WELLS IN SAUGOR DIVISION, SOUTHERN GANGA BASIN REGION, INDIA

Arun K Shandilya
Dr HSG University, India

The studies on the helium gas in the petroliferous tube wells in Saugor Division, Southern Ganga Basin region has been carried out in great detail in 50 tube wells, along with the stable isotopic analysis carried out for the gas sample collected from the 50 tube wells in Sagar and Damoh District of MP. The discovery of the rare gas helium in hydrocarbon rich zone in the tube wells in agricultural field at Garhakota, Rahatgarh, Bina, Banda and Sagar tahsils, of Sagar and Batiyagarh, Patharia, and Jabera, tahsils of Damoh District of MP is a unique finding in rocks of the Vindhyan Super Group, in the history of Earth Science in India. The depth of tube wells are varying in 300 feet to 750 feet. On the basis of geochemical analysis, it is remarkable to note that average values of helium contents varies from 0.34% to 0.732% along with the 72% to 99 % of methane and ethane, and minor amount of oxygen, nitrogen and CO_2 gases in the hydrocarbon rich zone are recorded during the geochemical and stable isotope analysis. It has been found in the stable isotope $\delta^{-13}C$ value the values for the methane is -43.6 per mil w.r.t. to -54.9 per mil w.r.t. PDB and for the Ethane gas is -24.9 to -26.4 per mil w.r.t. PDB in the gas samples collected in the saturated sodium chloride solution in the glass bottles at various sites in Sagar and Damoh District. The occurrence of rare helium gas in the hydrocarbon rich zone is reported first time in Jan' 2007 from the tube wells of Sagar Dist, which were geochemically and stable isotopically analysed in the labs of KDMIPE Dehradun and NGRI Hyderabad. The gaseous hydrocarbon analysis showed the presence of moderate to low concentration of methane (C_1): 1 to 104 ppb; Ethane (C_2): 1 to 14 ppb; Propane (C_3): 1 to 10 ppb; isobutane (i-C_4): 1 to 9 ppb and n-butane (n-C_4): 1 to 8 ppb in the soil samples collected from different locations in Sagar District. The result of the stable isotopic analysis of ethane gas in these samples, δ-13C values are ranging from -24.9 per mill w.r.t. PDB and -26.9 per mill w.r.t. PDB are indicative that this gas is of thermogenic origin, which must have been formed at very high temperature and pressure condition in the deeper horizon of the Great Vindhyan sedimentary basin of an early Proterozoic (> 600 m.y.) period.

akshandilya_u@rediffmail.com

EuroSciCon

EuroScicon Conference on

Applied Science, Biofuels & Petroleum Engineering

November 12-13, 2018
Athens, Greece

Int J Appl Sci Res Rev 2018, Volume: 5
DOI: 10.21767/2394-9988-C1-003

ACCOUNTING INFORMATION AND VALUES, THE CASE OF EXTRACTIVE ACTIVITIES

Blum Véronique
Université Grenoble Alpes, France

Leaving apart the discussion of whether financial statements should primarily serve the investors information needs, I examined how accounting information disclosed by oil and gas companies affect market prices. I thereby adopt a different angle as that of the successful versus full cost debate of the 1980s, which concentrated on the accuracy of accounting capitalization methods. Moreover and for the first time, a longitudinal study with a period of 11 years is preferred to most commonly conducted cross-sections analysis. Therefore, common with those studies is the use of an econometric model. Following some previous researchers and thanks to its ability to enclose past, present and forward looking information, the Ohlson's model is chosen for testing value relevance. Findings suggest that context i.e. economic conditions moderate the value relevance of accounting disclosure and that no disclosure can be deemed universally relevant, i.e. relevant in all contexts. However, sub-samples characterized by high or low oil prices indicate that market perceives vanilla like options on proven reserves. This result allows the capture of the assumptions behind the numbers perceived and integrated by investors. It also allows demonstrating that investors who think of their investment when considering a range of possible outcomes versus a deterministic view. Such findings address many issues of interest to companies, regulators, and standard setters. If the research is concentrated on oil and gas, it can easily be replicated to many extractive activities. My work opens some tracks for addressing investors' needs and disclosure but also impairment issues.

veronique.blum@gmail.com

EuroSciCon

EuroScicon Conference on

Applied Science, Biofuels & Petroleum Engineering

November 12-13, 2018
Athens, Greece

Int J Appl Sci Res Rev 2018, Volume: 5
DOI: 10.21767/2394-9988-C1-003

INNOVATIVE PATH-BREAKING COLD PROCESS TO MANUFACTURE SULPHONATING AGENTS AND SULPHUR-BASED CHEMICALS

Author - N. G Ashar

Manufacture of sulphuric acid and sulphonating agents underwent revolutionary change as a result of the inventive contact process using vanadium pentoxide catalyst in the 1950's. The Single-Contact Single-Absorption process was widely used until the1970's. The conversion efficiency of SO_2 to SO_3 was restricted to 96.5% resulting in stack emissions of 16 to 20 kgs of sulphur dioxide per ton of acid produced. Global warming and environmental concern prompted further improvement by introducing Double-Contact Double-Absorption (DCDA) process. In the DCDA process, the product SO3 was absorbed by introduction of Inter-Pass Absorption Tower (IPAT) keeping V_2O_5 contact process unchanged. Thus, the overall conversion efficiency was raised to 99.5–99.7%, thereby reducing sulphur dioxide emissions to below 4 kgs per ton of acid produced. This is today taken as an International Standard as recommended by Environmental Protection Agency of USA. Even so, at the current production level of over 150 million tons of Sulphuric acid per annum, this results into over one million tons of acid rain per year! This acid rain has serious impact on flora and fauna as well as aquatic life. The path-breaking Cold Process invented by Navdeep Enviro and Technical Service Pvt Ltd, Mumbai (India), and for which a patent has been applied at the International Patent Agency in Geneva, is designed to produce sulphuric acid and sulphonating agents with zero emission of sulphur dioxide, which totally eliminates acid rain. This paper outlines the techno economic features of the process, giving cost effectiveness of reduced plant area, lower maintenance costs, and higher cogeneration of steam with lower utility consumption.

navdeepenviro@gmail.com

EuroSciCon

EuroScicon Conference on

Applied Science, Biofuels & Petroleum Engineering

November 12-13, 2018
Athens, Greece

Int J Appl Sci Res Rev 2018, Volume: 5
DOI: 10.21767/2394-9988-C1-003

MECHANO-CHEMICAL ACTIVATION OF LIQUID HYDROCARBON FUELS BY USING THE ACTIVATOR ACCORDING TO THE PATENT OF RUSSIAN FEDERATION NO. 2411074

Anatoly V Dunaev[1] and Vorobev Yu V[2]

[1]Federal scientific Agro-engineering Center VIM, Russia
[2]Tambov State Technological University, Russia

The improvement of engines of research in the motor industry and in the service is overdue. But improving fuel efficiency and environmental friendliness is a costly upgrade of their fuel systems. And thanks to the study of fuels, this can be solved more simply, the modification of fuels that change their composition and properties by applying magnetic and electromagnetic, cavitation, tribotechnical processing, homogenization, additives. But outside, the magnetic fields of fuel changes are reversible, mechano-chemistry and more are tested: mechanochemistry changes in the composition, physical and chemical properties of substances under the influence of mechanical forces. Even strong chemical bonds breakage by electromagnetic fields and mechanical stresses are possible. At the beginning, the bonds with the lowest energy are torn, and strong bonds require 502.4 kJ/mol. The consequence, for example in heptane, is a violation of covalent bonds with energy yield of ~419 kJ/mol, free valence and free radicals, for example, R-CH2-, but the changes can be reversible. Mechanical activation is simple in equipment, not energy-consuming. It can be subjected to mixtures and individual fractions of oils. Their destruction occurs with the formation of low-molecular homologues, the most stable products are formed: hexane, heptane with the deposition of sulfur. The peculiarity of the mechanochemistry of hydrocarbons-irreversible reactions are outside the equipment. From here, it is promising. Thus, the activator of motor fuels under the RF patent No. 2411074 facilitates fractional composition of gasoline, aviation and diesel fuel. Activator tested three bench engine tests in Russia, environmental testing engines in Rochester (USA), chemmotology of eight grades of gasoline, three grades of diesel fuel, tens of chromatogram fuels, temperature control of freezing them and smoke of diesel engines. Chromatograms of mineral and biofuels showed an irreversible decrease in heavy hydrocarbons and the formation of lungs: hexane, heptane, 3-methyl pentane to 37%, decrease in sulfur content from 0.032 to 0.015%, resins from 7.4 to 0.8 mg/100 ml., in gasoline, the proportion of octane determining toluene increased to 16%, in aviation kerosene, nonane and decan to 21%. Activation continues behind the activator. Activation provides a reduction in fuel consumption by 20-27% without reducing the power of the engine, reduces smoke and toxicity of engines, reduces the freezing temperature of diesel fuel, it is cleaned of resins and sulfur compounds. Stable, effective and versatile action on fuel was introduced only in the activator according to the patent of Russian Federation № 2411074. Its irreversibility is suitable for automotive, transport, aviation and liquid-jet engine fuels. Activation is useful in the production and distribution of fuels, different fuels are brought to the same properties.

EuroSciCon

EuroScicon Conference on

Applied Science, Biofuels & Petroleum Engineering

November 12-13, 2018
Athens, Greece

Int J Appl Sci Res Rev 2018, Volume: 5
DOI: 10.21767/2394-9988-C1-003

OBTAINED MORE GASOIL IN HCR UNIT BY USING ARTIFICIAL NEURAL NETWORK

Ali Shaeri
NIOEC, Iran

A feed forward and multilayer perceptron artificial neural network (ANN) with back propagation algorithm were applied for prediction of maximum rate of gasoil production in a live hydrocracker unit (HCR). To this aim, two years of operating conditions were gathered from distributed control system (DCS). The simulation of unit by petro-SIM software was done as the first step to find important operational conditions. A three-layer ANN was adopted to predict maximum gasoil production in terms of aforementioned inputs. To find the best fitted ANN structure, 3342 different structures were examined. It was found that the best structure possessed 4, 7 and 1 neurons for the first, second and third layer, respectively. Furthermore, logsig, logsig and purelin were found the best transfer function for first, second and third layer. The best model was extracted and the obtained data were applied to the live HCR unit with capacity of 40000 bbl/day. The yielded optimum data related to ANN such as reactor temperature, reactor pressure and H2/HC mole ration were selected. Applying the ANN data resulted in an increase in the amount of gasoil and save near to $.

shaeriprocess@gmail.com
a.shaeri@iau-tnb.ac.ir

EuroSciCon

EuroScicon Conference on

Applied Science, Biofuels & Petroleum Engineering

November 12-13, 2018
Athens, Greece

Int J Appl Sci Res Rev 2018, Volume: 5
DOI: 10.21767/2394-9988-C1-003

FUTURE CHALLENGES IN DOWNSTREAM PETROLEUM REFINING

Mohan S Rana
Petroleum Research Center-Kuwait Institute for Scientific Research, Kuwait

Worldwide petroleum refining industry is entering into a new era, where light crudes are being replaced by heavy or unconventional (heavy or extra heavy) crudes. The unconventional crudes usually have low American Petroleum Institute (API) gravity; contain enormous amounts of contaminants, and higher carbon-to-hydrogen ratios, which means lower quality and less desirable feedstock in terms of cost and refining. These crudes have high percentage (>60%) of 350 °C+ fraction (i.e., bottom of barrel). The refining of such feeds is most difficult task and not only may that some of the existing refineries not be able to operate with heavy and extra heavy crude oil. Thus, due to the complex feedstock refinery processes and their operations must advance and include next-generation processes and catalysts to fulfil the clean fuel products demand and supply. The key for achieving deep removal of contaminants (S, N, O and metals) during the refining is to understand the factors that influence the removal of the different types of hetero-atoms present in the feed. The chemistry of composition at molecular level remain one of the challenging task particularly asphaltene. On the other hand, nature of catalyst properties (a balance between textural properties and catalytic sites) to heavy oil processing require further investigation particularly catalyst deactivation (life cycle) as a function of time-on-stream. The role of catalyst along with process parameters, and interaction involved during the conversion require deeper insight. Apart from the operating parameters, one of the most challenging tasks for heavy oil is molecular analysis that is specifically for the fraction of bottom barrel (residue), which contains large amount of asphaltene and CCR. Asphaltene is the most unpredictable and unstable cluster molecule, which is considered as a forerunner carrier for hetero atoms. Metals in the asphaltene aggregates are believed to be associated with the asphaltene sheets, making the asphaltene molecule more complex. Therefore, a design of catalyst formulation required a balance between textural properties, number of active sites and suitable operating conditions. This study focuses on the relationship between the various parameters of crude oil composition, physicochemical properties, and their impact on catalytic activities.

mrana@kisr.edu.kw

EuroSciCon

EuroScicon Conference on

Applied Science, Biofuels & Petroleum Engineering

November 12-13, 2018
Athens, Greece

Int J Appl Sci Res Rev 2018, Volume: 5
DOI: 10.21767/2394-9988-C1-003

MATERIAL SOLUTIONS TO REDUCE WEAR AND EROSION IN OIL AND GAS INDUSTRY

Tortor Johnbull Tom
Nigeria Maritime University, Nigeria

Erosion wear with regards to the oil and gas industry is a damage mechanism wherein, surface of engineering materials are damaged and/or removed due to the frequent impingement by erodent particles flowing in and through production equipment, in mixture with the hydrocarbon fluids during production, transportation and processing operations. Solid particles impaction and liquid-droplets cavitation's are the major malignant material surface damage snags in the erosion wear process, which results in failure of components such as choke valves, separator internals, pipelines and other production equipment(s) in the industry, that result in financial loss. This study is concentrated on material solutions to reduce wear and erosion in the oil and gas industry. As oil and gas production moves into extreme harsh, hard to reach subsea environments, frequent equipment failure and maintenance is not a desirable venture. The need to use advance materials solutions in the design and manufacturing of critical components is and should be management's top priority. Damage to production equipment often comes with several environmental and economic issues. This paper extensively discussed a holistic investigation of the fundamental influencing factors/parameters for the material surface erosion wear phenomenon prevalent in the oil and gas industry. The damage mechanisms of two critical components (choke valves and separator internals) were assessed and Stellite alloys are selected as the cost effective advanced erosion wear resistant material for these component design. The chemical composition and microstructures including the physical and mechanical properties of the Stellite alloys are evaluated and a comprehensive engineering material surface treatment methods suitable for the materials is explained. A statistical analytic model prediction on the erosion wear rate of the selected alloys is also completed and compared with existing models, and a significant agreement is observed in the results.

johnbulltortor@gmail.com

EuroSciCon

EuroScicon Conference on

Applied Science, Biofuels & Petroleum Engineering

November 12-13, 2018
Athens, Greece

Int J Appl Sci Res Rev 2018, Volume: 5
DOI: 10.21767/2394-9988-C1-003

PETROLEUM ENGINEERING INDUSTRIES IS THE MOST POWERFUL AND SUSTAINABLE TOOL FOR REDUCTION OF GLOBAL POVERTY AND HUNGER IN THE WORLD

Muhammad Usman

The title of presentation consist of petroleum engineering industries, sustainability and poverty were studied to find out the role of petroleum engineering industries which is the most powerful and sustainable tool for the reduction of global poverty and hunger in the world. Petroleum means rock oil, inflammable liquid found in the earth. Petroleum is made into paraffin, petrol, oil, gasoline and a great many other products. Sustainability is the ability or capacity of something to be maintained or sustain itself. If any activity is said to be sustainable, it should be able to continue forever. In other words, petroleum engineering is the study of how to locate and extract energy resources, such as oil and natural gas, from the earth. Similarly Petroleum engineers divide themselves into several types: Reservoir engineers work to optimize production of oil and gas via proper placement, production rates, and enhanced oil recovery techniques. Drilling engineers manage the technical aspects of drilling exploratory, production and injection wells. Production engineers, including subsurface engineers, manage the interface between the reservoir and the well, including perforations, sand control, downhole flow control, and downhole monitoring equipment; evaluate artificial lift methods; and also select surface equipment that separates the produced fluids (oil, natural gas, and water).. Similarly, the different industries of petroleum engineering absorbing millions of technical and nontechnical people, create employment, generate income which consequently reduced poverty and hunger in the world. Keeping in view the importance of petroleum engineering, it is proposed to commercialize the industries of petroleum engineering of the world as it is the most powerful and sustainable tool for reducing global poverty and hunger in the world.

usmankhan1949@yahoo.com

EuroSciCon

November 12-13, 2018
Athens, Greece

EuroScicon Conference on

Applied Science, Biofuels & Petroleum Engineering

Int J Appl Sci Res Rev 2018, Volume: 5
DOI: 10.21767/2394-9988-C1-003

INNOVATION IN OIL AND GAS EXPLORATION

Cleveland M Jones[1], Francisco Celso Ponte Filho[2], Alexandre P Cabral[2] and Marco Antonio Palermo[3]

[1]INOG/Instituto Nacional de Óleo e Gás, Brazil
[2]CEGeo/Centro de Excelência em Geociências, Brazil
[3]INEB/Instituto Nova Economia do Brasil, Brazil

Despite major technological breakthroughs in all phases and areas of the oil and gas (O&G) industry, exploratory activities continue to represent the gateway for the remaining phases of the industry. Development and production phases depend on a successful exploration phase, and better performance, such as more effective hydrocarbon finding methods and less expensive, faster exploration campaigns that drive more industry activity. In light of the impact of the efficacy and efficiency of exploration activities on the other phases of the O&G industry, a review of the most promising new technological innovations in geophysical exploration technologies was undertaken. The O&G industry is just beginning to deal with the change in the paradigm of the exploration model that it has long been employing, so that it can benefit from new technologies available for conducting its exploration activities. However, recent success cases point to the adoption of a new paradigm in the exploration model of the industry. Major technological advances that may impact the O&G industry positively, with step changes in competitiveness in identifying new hydrocarbon accumulations, are centered on new, direct confined fluid sensing methods. Better operational performance, both in exploration and production phases, will continue to be provided by incremental seismic performance.

clevelandmjones@gmail.com

EuroSciCon

EuroScicon Conference on

Applied Science, Biofuels & Petroleum Engineering

November 12-13, 2018
Athens, Greece

Int J Appl Sci Res Rev 2018, Volume: 5
DOI: 10.21767/2394-9988-C1-003

MODELLING OF WAIT AND WEIGHT WELL CONTROL METHOD FOR DUAL STRING DRILLING: A NOVELTY APPROACH FOR SAFER DEEP WATER DRILLING

Vivek Thakar, Manan Shah, Samip Umaretiya, Rajeshbhai Tundiya, Chandan Sahu, Sachin Nambiar and Anirbid Sircar

Pandit Deendayal Petroleum University, India

Since oil and gas reserves in onshore fields are depleting fast, the oil and gas industry is investing heavily on offshore exploration and production (E&P) which apparently is costlier. As a result, new unconventional drilling technologies are implemented to bring down costs needed to effectively exploit such reservoirs. Dual string drilling (DSD) is one such technology which suffices the deep waters drilling requirement at minimal costs with better operational safety. However, every drilling technology requires robust well control design to tackle the kicks from formation in well bore during drilling. Conventional riser drilling is full of predicaments and also the risks of having blowouts increases due to narrow operational window between fracture pressure and pore pressure which leads to the difficulties related to kick detection and lesser kick tolerance. Due to constant gradient of equivalent circulation density (ECD) is suitable for narrow pressure windows. Apart from this, it also has efficientcutting removal capacity, better annular clearance, elimination of differential sticking, better well stability, reduction of torque and drag and better extended reach drilling The novelty of this model sees the application of wait and weight well control technique in DSD which has the ability to resolve problems like long well killing time, large kill mud volume, early kick detection and formation fracture during well kick operations in soft formations.

samip.umaretiya@gmail.com

EuroSciCon

EuroScicon Conference on

Applied Science, Biofuels & Petroleum Engineering

November 12-13, 2018
Athens, Greece

Int J Appl Sci Res Rev 2018, Volume: 5
DOI: 10.21767/2394-9988-C1-003

MATRIX STIMULATION OF CARBONATE RESERVOIR USING MAXOIL

Ahmed Shakil Siddiqi, Mubasshir Raza and Kamil Shahzad
Sprint Oil & Gas Services, Pakistan

Treatment is designed to achieve well clean-up. Matrix stimulation of carbonate reservoir using MaxOIL is designed to maximize the oil production by removing all near wellbore damage and enhancing flow path of conductive fractures in hydrocarbon bearing zones limiting acid invasion in water producing zones. The fluids and operation sequence were designed to fulfill following main objectives: enhance production of hydrocarbons by removing skin and plugging in the formation matrix; reduce or remove any near wellbore damage which may cause an impairment to production; minimize the stimulation of water-bearing zones and divert acid into oil bearing formations; optimize pre-job preparation and thus simplify site operations and reduce overall job cost; conduct all operations safely and avoid harm to personnel, environment or equipment. Oil production increased from 5% to 60%. Water production decreased from 95% to 40%. Well production increased from ~1000 bopd to ~2500 bopd (150% increases).

kshshzad@sprint-iq.com

EuroSciCon

EuroScicon Conference on

Applied Science, Biofuels & Petroleum Engineering

November 12-13, 2018
Athens, Greece

Int J Appl Sci Res Rev 2018, Volume: 5
DOI: 10.21767/2394-9988-C1-003

A COMPARATIVE STUDY OF LANTHANA MODIFIED COMO/ AL2O3 CATALYST FOR SELECTIVE DEOXYGENATION OF WASTE CHICKEN FAT FOR SUSTAINABLE PRODUCTION OF RENEWABLE FUEL

Samia A Hanafi, Ghada Eshaq and Mamdouh S Elmelawy
Egyptian Petroleum Research Institute, Egypt

Our aim was to investigate the possibilities of the production of gas oil like hydrocarbons via the selective deoxygenation (SDO) realized by hydro treatment of waste chicken fat (WCF). We applied CoMoLa/Al2O3 catalyst in its sulfide and reduced state. The reactions were carried out in a fixed bed down flow reactor at reaction temperatures: 350-450 °C, operating pressure: 3, 7 and 8 MPa, liquid-hourly space-velocity (LHSV): 2.0, 4.0 h^{-1}, at a fixed H2/feedstock ratio: 450 Nm3/Nm3 he gaseous and liquid products were analyzed using gas chromatography (GC). Selective deoxygenation of WCF has resulted to the production of nC16- nC18 hydrocarbons, i.e. a liquid mixture within the boiling point range of diesel fuel. It seems that the catalytic hydrodeoxygenation is favored over the sulfide CoMoLa/Al_2O_3 catalyst, while decarboxylation and decarbonylation are favored over the reduced CoMoLa/Al_2O_3 catalyst. Reactions including decarboxylation and decarbonylation that generate CO_2 and CO can be suppressed at higher pressure and lower LHSV. The amount of H_2 consumed during the deoxygenation was larger using the reduced catalyst owing to the methanation reaction, resulting in high dependency of product composition on the initial hydrogen pressure, temperature, as well as LHSV.

elmelawy@gmail.com

EuroSciCon

EuroScicon Conference on

Applied Science, Biofuels & Petroleum Engineering

November 12-13, 2018
Athens, Greece

Int J Appl Sci Res Rev 2018, Volume: 5
DOI: 10.21767/2394-9988-C1-003

THE PRODUCTION OF RENEWABLE DIESEL FUEL THROUGH HYDRO TREATMENT OF WASTE CHICKEN FAT: A KINETIC STUDY

Samia A Hanafi, Asmaa S Morshedy, Ahamed M El Nagger and Mamdouh S Elmelawy

Egyptian Petroleum Research Institute, Egypt

In the current study, hydro treatment of low-grade waste chicken fat was used as a cost effective renewable feedstock to produce high quality renewable green diesel fuel like hydrocarbons. The reactions were carried out on the new synthesized $NiMo/TiO_2$ (15%)-Al_2O_3 sulfide catalyst in a fixed bed down flow reactor at reaction temperatures of 400-450 °C; liquid-hourly space-velocity (LHSV) 1.0-4.0 h^{-1}, constant hydrogen pressure of 6 MPa, and H_2/oil ratio: 600 N (cm^3/cm^3), for optimizing the best conditions. The organic liquid products (OLPs) were analyzed using gas chromatography (GC) to quantify the liquid product hydrocarbon distribution. The conversion, product yield, and contribution of decarbonylation/decarboxylation (DCO/DCO_2) and hydrodeoxygenation (HDO) reactions were investigated. The results demonstrated that reaction temperature affected to OLPs composition and reaction pathways including HDO and DCO/DCO_2 while LHSV have no influence on the mentioned reaction pathways. The reaction was found to follow the second order mechanism and the estimated activation energy (E_a) was 94.6 $kJmol^{-1}$.

elmelawy@gmail.com

EuroSciCon

EuroScicon Conference on

Applied Science, Biofuels & Petroleum Engineering

November 12-13, 2018
Athens, Greece

Int J Appl Sci Res Rev 2018, Volume: 5
DOI: 10.21767/2394-9988-C1-003

PT/SAPO-11CATALYSTS: EFFECT OF PLATINUM LOADING METHOD ON THE HYDRO-ISOMERIZATION OF N-HEXADECANE

S Said and Magdy T Zaki
Egyptian Petroleum Research Institute, Egypt

The platinum nanoparticles (Pt NPs) supported on microporous silicoaluminophosphate-11 (SAPO-11) was efficiently prepared by the aid of ethylene glycol (EG) as the reducing agent free of any surfactant or hydrothermal process. Another platinum supported SAPO-11 sample was prepared for comparisons by the conventional wet impregnation method. Characterization of catalysts was carried out using N2 adsorption, XRD, NH_3-TPD, TPR, SEM, H_2 pulse chemisorptions and DLS. The bifunctional Pt/SAPO-11 catalysts performances for the hydroisomerization (HDI) of n-hexadecane (n-C16) are employed to investigate the effect of loading method and amount of platinum content in the support.

ssm_epri83@yahoo.com

EuroSciCon

EuroScicon Conference on

Applied Science, Biofuels & Petroleum Engineering

November 12-13, 2018
Athens, Greece

Int J Appl Sci Res Rev 2018, Volume: 5
DOI: 10.21767/2394-9988-C1-003

TITANIA ASSISTED METAL ORGANIC FRAMEWORK MATRIX FOR ELEVATED HYDROGEN GENERATION COMBINED WITH THE PRODUCTION OF GRAPHENE SHEETS THROUGH WATER SPLITTING PROCESS

Heba M Gobara[1], Ahmed M A El-Naggar, Rasha S Mohamed and Amal A Alkahlawy

Egyptian Petroleum Research Institute, Egypt

In this study, metal organic framework (Cr-MIL-101) and TiO_2 nanoparticles were utilized as two semiconductors for water splitting process. The coupling of both semiconductors in order to improve the photocatalytic reactivity for the hydrogen production in presence of methanol as a hole scavenger under visible light (sunlight) has been performed. The aforementioned semiconductors and the collected samples after water splitting application are characterized by several techniques viz., XRD, N_2 adsorption-desorption, TEM, ED, EDX, Raman spectroscopy and total content of carbon. The results revealed an efficient yield of H_2 production with maximum purity 99.3% with *in situ* formation of graphene oxide nanosheets and multi-walled carbon nanotubes coated over the surface of the physically mixed Cr-MIL-101-TiO_2 system. The amount of H_2 gas produced was stored when using Cr-MIL-101 catalyst individually. The obtained data in this work provides a promising candidate material for pure hydrogen poduction as a clean fuel acquired from the water splitting process. In addition, the in situ production of graphene nanosheets and carbon nanotubes is counted as promising advances for the presented process.

hebagobara@ymail.com

EuroSciCon

November 12-13, 2018
Athens, Greece

EuroScicon Conference on

Applied Science, Biofuels & Petroleum Engineering

Int J Appl Sci Res Rev 2018, Volume: 5
DOI: 10.21767/2394-9988-C1-003

PHOTOCATALYTIC CONVERSION OF WATER/ METHANOL MIXTURE INTO HYDROGEN USING CERIUM/ IRON OXIDES BASED STRUCTURES

Heba M Gobara, Ahmed M A El Naggar and Wael A Aboutaleb
Egyptian Petroleum Research Institute, Egypt

This research work reports the photocatalytic production of hydrogen from water-methanol mixture using three different 15% ceria/ iron oxide catalysts. The catalysts were prepared by physical mixing, precipitation and ultra-sonication methods and labelled as catalysts A-C. The structural and texture properties of the obtained catalysts were confirmed by X-ray diffraction (XRD), Brunauer-Emmett-Teller (BET) surface area analysis and transmission electron microscopy (TEM). The photocatalytic activity of the three catalysts towards hydrogen generation was then tested. Promising hydrogen productivity was obtained by the three catalysts however different gases compositions were obtained by each type of catalyst. Specifically, catalyst A had produced hydrogen mixed with CO2 while the composite structure (catalyst B) had generated only pure H2. In the case of catalyst C, syngas made of H2 and CO was revealed, as a novel product, for the first time, in such process.

hebagobara@ymail.com

EuroSciCon

EuroScicon Conference on

Applied Science, Biofuels & Petroleum Engineering

November 12-13, 2018
Athens, Greece

Int J Appl Sci Res Rev 2018, Volume: 5
DOI: 10.21767/2394-9988-C1-003

FUELS PRODUCTION FROM WASTE TIERS PYROLYSIS BY CATALYTIC HYDROCRACKING OVER NI SUPPORTED ZEOLITES PREPARED FROM THE STEEL INDUSTRY WASTE MATERIALS

Wael A Aboutaleb[1], Abd Elftah T Elgendy[2], Abdelghaffar S Dhmees[1] and Kreem A Emara[3]

[1]Egyptian Petroleum Research Institute, Egypt
[2]Unversity of Ain-Shams, Egypt
[3]University of Helwan, Egypt

As a response of fossil fuels crises, cleaner fuels are highly demanded. Also, numerous efforts and economics were exerted for the hazardous used car tiers disposals. This work is part of scientific project to establish a national technology for used tiers conversion to fuels through pyrolysis and hydrocracking processes. The pyrolysis has investigated by modelling using Arrhenius equation to determine the most effective activation energy and hence the suitable pyrolytic temperature. Effect of several factors such as the tiers cutting size, pyrolysis time and inert gas flow on the pyrolysis efficiency has been experimentally studied. The results showed that the optimum pyrolysis condition was to cut the tiers to pieces of 2 mm and heated up to 420 °C for 1 h with N_2 flow of 50 sccm. The produced pyrolysis oil has fractionated according to ASTM to different cuts of <70 °C to 360 °C to be used as reforming and hydrocracking source. The hydrocracking process would be soon studied to produce useful products such as bio-kerosene, bio-diesel etc. As a further environmental friendly consideration, the catalyst whose support is needed for the refining processes has been synthesized from the blast furnace bitch as steel industry waste. The prepared catalysts would be characterized using the usual tools such as XRD, TPR, TPO, XRF, HRTEM, BET, EDX and XRF. Finally the produced bio-fuels would be analyzed using different tools such as GC, HPLC, routine analysis to compare the bio-oils with the normal petroleum based fuels. Further examination of fuels performance in diesel engine would also be investigated to ensure the synthesized fuels ability and suitability for ignition.

waelaboutaleb@yahoo.com

EuroSciCon

EuroScicon Conference on

Applied Science, Biofuels & Petroleum Engineering

November 12-13, 2018
Athens, Greece

Int J Appl Sci Res Rev 2018, Volume: 5
DOI: 10.21767/2394-9988-C1-003

EXTENDING THE LIFE OF PETROLEUM RESOURCES: CASE STUDIES ON CHEMICALS FROM GLYCEROL

Akkihebbal K Suresh
Indian Institute of Technology Bombay, India

In the search for sustainable alternatives to petro-based transportation fuels, biodiesel has attracted a lot of attention. The economics of biodiesel production is significantly impacted by the market for its by-product, glycerol. Glycerol in its own right presents interesting possibilities for replacement of petrochemicals and has been viewed as a versatile building block chemical because of its multifunctionality. However, its availability and price in the market are tied to the fortunes of biodiesel, and hence, one should probably target high value products from it. In this talk, we present a few possibilities of this type. Oxidative valorisation of glycerol can lead to products like dihydroxyacetone and tartronic acid which have a high market value. However, directing the oxidation is a challenging task. Several catalysts have been investigated in this regard and Pt, Pd, Au and Bi have shown potential. The activity and selectivity of these catalysts are highly dependent on the support, and support interactions have to be understood in order to realise process possibilities. The choice of reactors presents another challenge because of the complex chemistry of the oxidation, as well as the possibility of mass transfer influences. A systematic study of kinetics accounting for all these factors can point to the right direction in terms of reactor selection. Here we present results from a detailed kinetic investigation on Pd-catalysed glycerol oxidation, and some conclusions on choice of reactor. Hydrogenolysis of glycerol can lead to 1, 2- propanediols and 1, 3-propanediols. While both present possibilities to replace petro-based monomers, 1, 3-PD is particularly attractive as a replacement of ethylene glycol in polyester manufacture. Here again, it is a challenge to direct the reaction to the desired product. While noble metal catalysts supported on tungsten oxide or silico-tungstic acid has shown potential, the literature is often inconclusive about the mechanism of the reaction involved. We present a review and some of our own results on this reaction in this talk.

aksuresh@iitb.ac.in