6th International Conference on Engineering Technology and Applied Sciences

19-23 October 2022
Tirana, Albania
www.icetas.com

Book of Abstracts

ISBN: 978-605-4444-21-2

Book of Abstracts of the 6th International Conference on Engineering Technology and Applied Sciences (ICETAS 2022)

Edited by Prof. Dr. Ayhan EROL
Assoc. Prof. Dr. Ahmet YÖNETKEN
Published, 2022
yonetken@aku.edu.tr

6th International Conference on Engineering Technology and Applied Sciences

ICETAS 2022

Tirana/Albania

19-23 October 2022

www.icetas.com

Book of Abstracts

ISBN:978-605-4444-21-2

Book of Abstracts of the International Conference on Engineering Technology and Applied Sciences (ICETAS 2022)

Edited by Prof. Dr. Ayhan EROL

Assoc. Prof. Dr. Ahmet YÖNETKEN

Published Afyon Kocatepe University, October 2022,

info@icetas.com

Welcome to ICETAS 2022

On behalf of the organizing committee The Conference organized every one years, respectively; Afyon Kocatepe University in 2016 – Afyonkarahisar, Technical Universityof Cluj-Napoca in 2017 Romania, 17-21 May 2018 in Skopje/Macedonia, 24-28 July, 2019 in Kiev/Ukraine, 02-06 July, 2021 in Sarajevo/Bosnia and Herzegovina. we are pleased to announce that the 6th International Conference on Engineering Technology and Applied Sciences (ICETAS 2022) is held from 19-23 October, 2022 in Tirana/Albania ICETAS 2022 provides an ideal academic platform for researchers to present the latest research findings and describe emerging technologies, and directions in Engineering Technology and Applied Sciences issues. The conference seeks to contribute to presenting novel research results in all aspects of Engineering Technology and Applied Sciences. The conference aims to bring together leading academic scientists, researchers and research scholars to exchange and share their experiences and research results about all aspects of Engineering Technology and Applied Sciences. It also provides the premier interdisciplinary forum for scientists, engineers, and practitioners to present their latest research results, ideas, developments, and applications in all areas of Engineering Technology and Applied Sciences. The conference will bring together leading academic scientists, researchers and scholars in the domain of interest from around the world. ICETAS 2022 is the oncoming event of the successful conference series focusing on Engineering Technology and Applied Sciences. The scientific program focuses on current advances in the research, production and use of Engineering Technology and Applied Sciences with particular focus on their role in maintaining academic level in Engineering and Applied Sciences and elevating the science level. The conference's goals are to provide a scientific forum for all international prestige scholars around the world and enable the interactive exchange of state-of-the-art knowledge. The conference will focus on evidence-based benefits proven in clinical trials and scientific experiments. Best regards,

Chairman of Conference

Prof. Dr. Ayhan EROL

HONORARY COMITTIEE

Prof. Dr. Fatbardh SALLAKU	Rector Agricultural University of Tiran
Prof. Dr. Mehmet KARAKAŞ	Rector Afyon Kocatepe University
Prof. Dr. Ing.Vasile TOPA	Rector Cluj Napoca Tecnical University

INTERNATIONAL SCIENTIFIC COMMITTEE

Abdurrazzag Ali ABURAS	KwaZulu Natal University	SOUTH AFRICA
Adem KURT	Gazi University	TURKEY
Ahmet AKSOY	Akdeniz University	TURKEY
Ahmet YILDIZ	Afyon Kocatepe University	TURKEY
Alexander ONUFRAK	Pavol Jozef Safarik University	SLOVAKIA
Anas Sarwar QURESHI	Agriculture University	PAKISTAN
Artay YAGCI	Afyon Kocatepe University	TURKEY
Asım Gokhan YETGIN	Dumlupinar University	TURKEY
Behçet GULENC	Gazi University	TURKEY
Bojan ZLENDER	Maribor University	SLOVENIA
Cahit GURER	Afyon Kocatepe University,	TURKEY
Dinçer BURAN	Süleyman Demirel University	TURKEY
Dunja PERIC	Kansas State University, Manhattan	ABD
Dusan ORAC	Kosice Technical University	SLOVAKIA
Elena Cristina RADA	Trento University	ITALY
Gabor PAY	University College of Nyiregyhaza	HUNGARY
Gentjan MEHMETI	Agricultural University. Of Tiran	ALBANIA
Halyna KUZNETSOVA	Oleksandr Dovzhenko Hlukhiv National Pedogogical University	UKRAINE
Hazizan Md AKİL	Sains Malaysia University	MALAYSIA
Huseyin Ali YALIM	Afyon Kocatepe University	TURKEY
Huseyin AKBULUT	Afyon Kocatepe University	TURKEY
Huseyin BAYRAKCEKEN	Afyon Kocatepe University	TURKEY
Ilhan KOŞALAY	Ankara University	TURKEY
Ioan ABRUDAN	Technical University Cluj Napoca	ROMANIA
Ivan KURIK,	Technical University Zilina	SLOVAKIA
Iveta VASKOVA	Kosice Technical University	SLOVAKIA
João Pedro SILVA	Leiria Polytechnic Institute	PORTUGAL
Lucian Ionel CIOCA	Lucian Blaga University of Sibiu	ROMANIA
Marco RAGAZZI	Trento University	ITALY
Martina HRUBOVCAKOVA	Kosice Technical University	SLOVAKIA
Matjaž ŠRAML	Maribor University	SLOVENIA
Merlinda EBIBI	Mother Teresa University	MACEDONIA
Mihai BANICA	Technical University Cluj Napoca	ROMANIA
Mircea HORGOS	Technical University Cluj Napoca	ROMANIA
Monica Lopez ALONSO	University of GRANADA	SPAIN
Muhammed YURUSOY	Afyon Kocatepe University	TURKEY
Mustafa ERSOZ	University of Selcuk	TURKEY
Mustaque HOSSAIN	Kansas State University, Manhattan	ABD

Nicolae UNGUREANU	Technical University Cluj Napoca	ROMANIA
Neritan TURKESHI	Mother Teresa University	MACEDONIA
Olivera PETKOVSKA	Mother Teresa University	MACEDONIA
Olena MELNYK	Oleksandr Dovzhenko Hlukhiv National Pedogogical University	UKRAINE
Olga OROSOVA	Pavol Jozef Safarik University	SLOVAKIA
Otar ZUMBURIDZE	GeorgiaTechnical University	GEORGIA
P. Trinatha RAO	Gitam University	INDIA
Peter MONKA	Technical University Kosice	SLOVAKIA
Prasanna RAMAKRISNAN	Neo Education Institu	MALAYSIA
Ramazan KAÇAR	Karabük University	TURKEY
Radu COTETIU	Technical University Cluj Napoca	ROMANIA
Regita BENDIKIENĖ	Kaunas Technology University	LİTVANIA
Renata PANOCOVA	Pavol Jozef Safarik Üniversity	SLOVAKIA
Rıdvan UNAL	Afyon Kocatepe University	TURKEY
Robert CEP	Technical University Ostrava	CZECH
Serdar SALMAN	Marmara University	TURKEY
Serhat BASPINAR	Afyon Kocatepe University	TURKEY
Sermin OZAN	Fırat University	TURKEY
Sezai TAŞKIN	Celal Bayar University	TURKEY
Sulejman SULÇE	Agricultural University. Of Tiran	ALBANIA
Suleyman GUNDUZ	Karabük University	TURKEY
Stanislaw LEGUTKO	Poznan University of Technology	POLAND
Tomasz NIZNIKOWSKI	Lomza State University Applied Science	POLAND
Tomaz TOLLAZZI	Maribor University	SLOVENIA
Ugur CALIGULU	Firat University	TURKEY
Yılmaz YALCIN	Afyon Kocatepe University	TURKEY
Yuksel OĞUZ	Afyon Kocatepe University	TURKEY
Zoran TRIFUNOV	Mother Teresa University	MACEDONIA

ORGANIZATION COMMITTEE

Ahmet YONETKEN	Afyon Kocatepe University	TURKEY
Ayhan EROL	Afyon Kocatepe University	TURKEY
Elena Cristina RADA	Trento University	ITALY
Gabor PAY	Nyiregyhaza Collage University	HUNGARY
Gunnur PESMEN	Afyon Kocatepe University	TURKEY
Gratiela BOCA DANA	Cluj-Napoca Technical University	ROMANIA
Hazizan Md AKIL	Sains University	MALAYSIA
Iveta VASKOVA	Technical University of Kosice	SLOVAKIA
Miorita UNGUREANU	Cluj-Napoca Technical University	ROMANIA
Nadras OTHMAN	Sains University	MALAYSIA

TIRANA | OCTOBER 19 - 23 2022

ICETAS

6th International Conference on Engineering Technology and Applied Sciences

Hybrid Conference

Organized by

AFYON KOCATEPE ÜNİVERSİTESİ 1992

TECHNICAL UNIVERSITY OF CLUJ-NAPOCA ROMANIA

UNIVERSITETI BUJQËSOR I TIRANËS 1951

Supported by

ZENITH GROUP

EUROPE CONGRESS

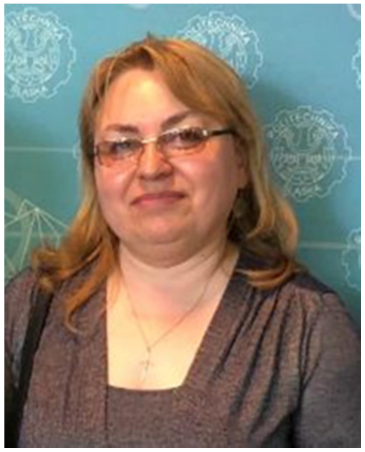
TURKISH AIRLINES

InvIted Speakers

Prof. Dr. SERDAR SALMAN Vice Rector
National Defense University (TURKEY)

Prof. Dr. A Prof. Dr. Carlos A. COELHO
Universidade Nova de Lisboa (PORTUGAL)

Assoc. Prof. Dr. Tamar LOLADZE
Georgian Technical University (GEORGIA)



Prof. Dr. Grariela Dana BOCA (ROMANIA)
Technical University of Cluj Napoca

Prof. Dr. Meena LEAD (INDIA)
Symbiosis Institute of Technology

CONTENTS

Page

A FISH BONE DIAGRAM USED IN MANAGEMENT WASTE

GRATIELA DANA BOCA

Technical University of Cluj Napoca

Romania

gratiela.boca@econ.utcluj.ro

Abstract:

Recently, an important problem is the plastic harm ad pollution of environemnt. The introduction of biodegradable plastic is a welcome solution in global economy. The case study presents the fish bone diagram used to identify the causes knowoing the effect plastic waste, as a tool in management waste solution the factors that influence the management in recycling process. The objective of the study was to investigate the causes which influence the organization workers towards recycling and selective recycling. A study case was conducted among a small entrepreneur activity from Baia Mare, Romania. Uisng the fishbone diagram as a quality tool it was possible to identify four causes, 4 M's like: man, money, methods and materials parts in measuring quality. The results also highlighted differences in recycling behaviors related to the relationship between the four causes and their effect as a good example which positively influence the behavior of the work staff in the recycling process.

Keywords: 4M, fishbone diagram, management waste, recycling, plastic,biodegradable plastic

ADOPTION OF TRANSFER FROM TRADITIONAL MANUFACTURE TO INDUSTRY 4.0

GRATIELA DANA BOCA

Technical University of Cluj Napoca

Romania

gratiela.boca@econ.utcluj.ro

Abstract:

For industry an important problem it is innovation and digitalization. The introduction of new Industry 4.0 needs a transfer from the traditional manufacture to the new type smart factory.. The case study presents the entrepreneur's behavior and attitude towards the innovation and introduction of digital generation in technological process. Their behavior and their involvement in new trends from market was study by conducting a survey among 174 managers and small business entrepreneurs in Baia Mare, Romania. The objective of the study was to investigate the behavior of entrepreneurs and managers level of culture and their attitude towards innovation needs. The survey included four parts: individual characteristic (age, gender and occupation), type of economical activity, level of implication of human resources in organization, the possibility of digitalization, the innovation perception. The results also highlighted the problems and differences in business activities and their impact upon activities. The study also reveled the orientation for new activities taking in consideration the pandemic experience too. As a final conclusion about digital performance management for organization shoed that they monitor and improve performance by driving operational decision making, a better reaction speed and competitiveness. Also another solution for companies can be uses of digital dashboards to monitor production resources and collect real-time production data.

Keywords: entrepreneur, innovation, digitalization, smart factory, traditional manufacture

A CROSS CULTURAL MODEL OF FACTORS INFLUENCING RECYCLING

GRATIELA DANA BOCA[a], ARZUM ISITAN[b]

[a]Technical University of Cluj Napoca,Romania, gratiela.boca@econ.utcluj.ro

[b]Pamukkale University, Faculty of Engeneering,Denizli, Turkey, aisitan@pau.edu.tr

Abstract:

Recently, an important problem is environmental pollution. The introduction of selective recycling of products is a welcome solution in all economic fields. The case study presents the students' behavior and attitude towards the issue of plastic and the factors that influence their behavior and their involvement in recycling materials. A survey was conducted among 162 students from general and high school in Baia Mare, Romania. The objective of the study was to investigate the behavior of high school students between the level of culture and their behavior towards recycling. The survey included four parts measuring social involvement, perceived behavioral control and involvement in selective recycling. The results also highlighted strong intercultural differences in recycling behaviors related to the relationship between the young generation and their parents and how the good example positively influences the behavior of the young generation in the recycling process

Keywords: recycling, student's behavior and attitude, pollution, environmental education

DETECTION OF THE STAGE OF ALZHEIMER'S PATIENT FROM SLEEP PATTERNS

FIRAT OZCAN

Kırklareli University, Department of Mechatronics Engineering, Faculty of Technology, 39100,

Phone:+902882142083 Fax:+902882142084, Kırklareli/Turkey

firatozcan@klu.edu.tr

Abstract:

Alzheimer's disease (AD) is a functional disorder of the brain that causes various neuropsychiatric behavioral disorders and causes significant physical and psychological destruction in the individual, memory loss, problems in business life, deterioration in hobby and social relationships, and progressive brain damage. Excessive alcohol consumption and other toxic substances can trigger Alzheimer's for many reasons such as traumas, vascular diseases and metabolic disorders. While the exact cause of Alzheimer's disease is not yet known, symptoms of the disease usually begin to appear in the 60s. Hallucinations and depressions are common in the early stages of this disease. As a result of statistical data, it is seen that patients live between 2 and 8 years. Some of the patients who respond to treatment and live in favorable conditions live up to 20 years. The first symptom of the disease begins with the complaint of forgetfulness. Neuropsychiatric tests provide information about the presence, absence and stage of the disease. The stages of Alzheimer's disease are preclinical and consist of 7 stages: very mild disorder, mild disorder, moderate disorder, moderately severe disorder, severe disorder, and very severe disorder. In order to prevent Alzheimer's disease, attention should be paid to nutrition, if it is to be done without it, attention should be paid to different activities and sleep patterns. In this study, a smart watch application is proposed to help monitor sleep disorder, which is one of the biggest symptoms of AD. Thanks to this application, the daily sleep patterns of AD patients are measured and recorded. Thanks to the data obtained from this application, the stage of AD disease is estimated.

Keywords: sleep patterns, Alzheimer, Remem, Watch Application

USE OF WEARABLE TECHNOLOGIES IN SUNDOWN SYNDROME

EVREN ÇAĞLARER[*1] , GÜLCAN İNER[*2]

[*1]Kırklareli University, Technology Faculty, 39100, Kırklareli/ Turkey,

evren@klu.edu.tr

[*2]Kırklareli University, Vocational School of Technical Sciences, 39100, Kırklareli/ Turkey,
gulcan.iner@klu.edu.tr

Phone:+902882142083 Fax:+902882142083

Abstract:

Symptoms of Alzheimer's disease and other associated dementias are typically memory-related, but mood and behavioral changes occur as mental information processing worsens. It can be evastating if a person's lifestyle, daily routine, and social life are interrupted and permanently changed by cognitive decline. Loss of communication skills, access to memories, and reduced overall functioning result in a variety of emotions such as anger, frustration, and anxiety. Dementia also causes suspicion because situations become difficult to understand. And the disease reduces a person's barriers to expressing their emotions, causing resentments, outbursts of anger, and even excessive laughter. A person with Alzheimer's may feel anxious or excited. May become restless, upset when focusing on certain details. Anxiety can stem from difficulty processing both new and old information and experiences. New places and faces can be disturbing for individuals with dementia, especially as memories of familiar places and faces fade. Some people respond to anxiety gradually, by experiencing insomnia or restlessness; others may choose to hold on to familiar objects or individuals. Sleep problems are common for people with dementia. Some people sleep during the day and are awake and restless at night. While some can no longer tell the difference between night and day, others are not as active as they used to be and need less sleep as a result. Sundown syndrome (SS) is the sum of all these destructive behaviors of the person that worsen in the afternoon and evening. This phenomenon, which is very difficult for patients and their relatives, has been in the medical literature for more than 60 years. This study is about a system that combines people's monitoring and coping methods with wearable technologies and uses non-drug-based relaxation methods such as relaxing music, light level or scent.

Keywords: Sundown Syndrome, Wearable Technology, Remem,Alzheimer

THE IMPORTANCE OF SPACE FOR ALZHEIMER'S PATIENTS

GÜLCAN İNER[*1], EVREN ÇAĞLARER[*2] ,

[*1]Kırklareli University, Vocational School of Technical Sciences, 39100, Kırklareli/ Turkey,
gulcan.iner@klu.edu.tr

[*2]Kırklareli University, Technology Faculty, 39100, Kırklareli/ Turkey,

evren@klu.edu.tr

Phone:+902882141845 Fax:+902882141495

Abstract:

Dementia is a word derived from the Latin word “mens” meaning mind and means loss of mind. The presence of at least two cognitive functions in the mind, such as speech, perception, calculation, judgment, abstract thinking and problem solving, which cannot be fully treated and which is progressive, suggests the presence of this disease. Depending on the disorder in mental functions and the course of the disease, the patient's daily life activities are limited and his social and professional life is impaired. In Alzheimer's disease, in the mild stage; Symptoms and behaviors such as forgetfulness affecting daily life, difficulty remembering the location of things and making a reminder list are seen. In the middle stage; memory impairment progresses, the patient disappears in an unfamiliar environment as his place orientation begins to deteriorate. In the advanced stage; The dementia patient lives entirely in the past. Aimless wandering, repetitive movements and emotional behaviors are observed in the patient who is lost even in the familiar environment. The patient becomes fully dependent towards the end of the stage. Basic practices that give importance to patient-oriented individuality and increase the quality of life in Alzheimer's patients play an important role in protecting the patient's physical and mental health. Reducing environmental barriers, and regulating the patient's relationship with the place, can reduce the physical damage that may occur due to the disease. In Alzheimer's disease, one of the practices to be adopted to ensure the comfort of the patient is to avoid making changes in the place where the patient lives. It is important to maintain the ongoing state of the space. In this context, furniture and color changes should be avoided. Making space arrangements safe and easy is another important factor. It is necessary to avoid slippery floors and elevation differences in the living area, and to avoid home textiles such as carpets and rugs that can cause tripping and falling. There should be sturdy handles mounted on the wall to facilitate movement in the room and in wet areas. For the safety of the patient, sharp tools should be kept in locked cabinets, valuables and keys should be kept in places

that cannot be easily reached.This study touches on the importance of space comfort for the patient in Alzheimer's disease.

Keywords: Alzheimer, Comfort of Space, Relationship between place and patient, Quality of life

DISTURBANCE REJECTION PERFORMANCE COMPARISON OF PSO AND ZN METHODS FOR VARIOUS SQUARE WAVE DISTURBANCE

CELAL ONUR GOKCE[1*], VOLKAN DURUSU[2], RIDVAN ÜNAL[2],

[*1]Afyon Kocatepe University, Technology Faculty,Software Engineering Afyonkarahisar/ Turkey,

cogokce@aku.edu.tr

[*2]Afyon Kocatepe University, Technology Faculty,Electrical and Electronic Engineering Afyonkarahisar/ Turkey,

runal@aku.edu.tr

Abstract:

In this study Proportional-Integral-Derivative (PID) control of brushed DC Motor is analyzed. The parameters of the PID controller are tuned with two different approaches, namely Ziegler-Nichols (ZN) and Particle Swarm Optimization (PSO). The system is tested under square wave disturbance of varying frequencies in order to evaluate and compare disturbance rejection performances. It is shown that PSO approach has clearly higher performance compared with ZN approach for all disturbance frequencies. Simulations are done using Python programming language with trapezoid rule for differentiation and integration. Results are given in both figures and tables. Comments are done on results and future study is planned.

Keywords: PID control, Ziegler-Nichols, Particle Swarm Optimization

INVESTIGATION OF THE EFFECT OF THE ADDITION OF WASTE EGG SHELL ON THE PRODUCTION OF CERAMIC-METAL COMPOSITE WITH ULTRASONIC TEST TECHNIQUE

VİLDAN ÖZKAN BİLİCİ[1]-GÜNNUR PEŞMEN[2] AHMET YÖNETKEN[3] –AYHAN EROL[4]

[1]Afyon Kocatepe University, Physics Dept., 03200, Afyonkarahisar, TURKEY, vildanozkan@aku.edu.tr. ORCID: 0000-0002-3077-2103
[2]Afyon Kocatepe University, Şuhut Vocational School, Afyonkarahisar, TURKEY, gpesmen@aku.edu.tr. ORCID: 0000-0002-9164-6629
[3]Afyon Kocatepe University, Electrical Engineering Dept., 03200, Afyonkarahisar, TURKEY, yonetken@aku.edu.tr. ORCID: 0000-0003-1844-7233
[4]Afyon Kocatepe University, Metalurji and Materials Engineering Dept., 03200, Afyonkarahisar, TURKEY, aerol@aku.edu.tr. ORCID: 0000-0003-4215-9303

Abstract:

In this study, ceramic-metal composite material reinforced with additive prepared from waste egg shell was produced. Waste eggshells were cleaned, dried, ground and then sieved. The effects of eggshell reinforcement ratio (0, 1.66, 3.34, 5 and 6.66 % by volume) and sintering temperature (1400°C) applications on Fe-B4C ceramic-metal powders were tested. For this purpose, tests such as ultrasonic test, hardness and density were applied to the composite material, and finally, microstructural analysis was performed on the composites by SEM application. The changes in the crystal structure of the egg shell after sintering were revealed by XRD analysis. Addition of 6.66% egg shell in the ceramic-metal composite mixture gave the best physical and mechanical properties. It was observed that the hardness, ultrasonic longitudinal and transverse wave velocities also increased with the increase in the reinforcement ratios of the eggshell. According to the test results obtained, it was determined that it would be appropriate to use the eggshell in the production of composite materials and to characterize it with the ultrasonic test method.

Keywords: Waste eggshell, Ceramic-metal composite, Ultrasonic test, Recycles

INVESTIGATION OF THE EFFECT OF COLOUR VARIATION AND PATTERN CHANGE ON PERFORMANCE AND THERMAL PROPERTIES OF ACRYLIC KNITTED FABRICS

MEHMET CAKMAKKAYA[a], FURKAN SOYLU[b]

[a]Afyon Kocatepe University, Automotive Engineering Dept., 03200, Afyonkarahisar, TURKEY, cakmakkaya@aku.edu.tr

[b]Afyon Kocatepe University, Automotive Engineering Dept., 03200, Afyonkarahisar, TURKEY, soylu61@gmail.com

Abstract:

Samples that are going to be used in this research are produced in such a way that the threads are 35/2 NM 100% acrylic. The yarns consist of [40% Acrylic (2.75 dtex unrelax), 60% Acrylic (2.2 dtex relax pilling)] mixing ratios and tow dyeing process has been applied to these fibers. In this fibre dyeing process, by creating 2 groups, 2 light colored fibers, 2 medium-colored fibers, 2 dark colored fibers and 2 super dark dyed fibers were produced and a total of 8 dyed yarns were obtained. Rib and plain knit fabrics were produced from the yarns obtained. The effects of temperature and dyeing times on dyeing recipes were investigated by performing thickness, air permeability, alambeta, bursting test and yarn strength tests on sixteen samples obtained.

Keywords: Acrylic, thermal absorptivity, bursting strength, air permeability, yarn strength

THE PLACE OF ENERGY STORAGE IN SMART AND MICRO NETWORKS

FATMA VİLDAN BOZ[1], AHMET YÖNETKEN[2]

[1]Afyon Kocatepe University, Renewable Energy Systems Dept., 03200, Afyonkarahisar, TURKEY, fatmavildanisler@outlook.com ORCID: 0000-0003-1844-7233

[2]Afyon Kocatepe University, Electrical Engineering Dept., 03200, Afyonkarahisar, TURKEY, yonetken@aku.edu.tr. ORCID: 0000-0002-9050-8240

Abstract:

One of the most important goals of the smart grid system is to establish microgrid applications to provide more distributed energy generation and energy storage to end users. To do all this, the grid needs to get smarter. In order to meet the increasing power supply due to these applications and the increase in power generation from renewable energy, the importance of systems and power storage systems that will serve as a needed energy buffer in addition to energy efficiency has increased. Energy/power storage systems have the potential to improve electrical power systems and increase renewable electricity generation. In this article, chemical and mechanical storage methods along with electrical storage are examined.

Keywords: Smart grid systems, Energy storage methods, Electrical storage, chemical storage, mechanical storage.

SOLAR ENERGY EXPERIMENT SET DESIGN AND APPLICATION CONSISTING OF MONOCRYSTALLINE AND POLYCRYSTALLINE

ABDİL KARAKAN[1]*, YÜKSEL OĞUZ[2] and AHMET YÖNETKEN[3]

*[1]Electrical Department/ Dazkırı Vocational Scholl, Afyon Kocatepe University, Turkey, akarakan@aku.edu.tr

[2]Electrical Electronics Engineering/ Faculty of Technology, Afyon Kocatepe University, Turkey, yukseloguz@aku.edu.tr

[3]Electrical Engineering/ Faculty of Engineering, Afyon Kocatepe University, Turkey, yonetken@aku.edu.tr

Abstract:

Solar systems are at the forefront of renewable energy systems. With the development of solar energy systems, new business areas are emerging. Recently, with the decrease in solar panel costs and the increase in energy prices, interest in solar energy systems has increased. It is aimed to train individuals who are equipped in the field of renewable energy with the solar energy system experiment set, which is designed and implemented.

In this study, solar energy system experimental set design and application were made. Monocrystalline and polycrystalline solar panels, which are the most used in the market, were preferred in the experimental set. Each solar panel has a power of 20 watts. Solar panels are designed in such a way that they can move independently of each other as well as together. The voltage, current and power produced by the solar panels can be monitored instantly on the computer screen. In addition, all data seen on the computer screen were recorded in the database at intervals of 10 seconds. With the experimental set, the energies produced by each solar panel can be instantly measured and compared, and retrospective evaluation can be made with the recorded data. Thus, it was determined how much energy each solar panel produced at different angles.

Keywords: Renewable energy, photovoltaic system, monocrystalline, polycrystalline solar panels.

FINDING THE CLOSEST AND LOWEST PRICE PHARMACY OVER A GIVEN LOCATION

JULIAN IMAMI

POLYTECHNIC UNIVERSITY OF TIRANA UPT

imamijulian@gmail.com

Abstract:

People will purchase an item if it is necessary, but they will look for a seller who is worthy of their money. Approval, and timing have little bearing on a purchase decision. Therefore, negotiating a lesser price is crucial because it may improve their mood. Why do drugstore prices vary so much, you might be wondering. Even for non-prescribed treatments, pricing can vary greatly. Because different pharmacy benefit managers (PBMs) negotiate pricing between pharmacies and prescription manufacturers, these costs vary. Medication costs frequently change when there are numerous PBMs and pharmacies. This paper aim is giving the customers a possibility to enter the desired medication and their location and to get the closest (driving distance) pharmacy which will offer requested drugs at a lower cost. The project will include creation of a dedicated website and the use of a PostgreSQL database..

Keywords: Pharmacy website, database, PostgreSQL, procedu

THE IMPACT OF MASS FLUXES AND CURVATURE RATIOS ON THE PRESSURE DROP FOR AMMONIA IN U BENDS IN LIGHT OF EXISTING CORRELATIONS

[1]ATIF MUZAFFAR, [2]AHMAD ABBAS

[1]Ghulam Ishaq Khan Institute of Engineering Sciences and Technology, Topi, Swabi, Pakistan

[2]Ghulam Ishaq Khan Institute of Engineering Sciences and Technology, Topi, Swabi, Pakistan

atif.muzaffar@giki.edu.pk, ahmad@giki.edu.pk

Abstract:

As a result of regulations on refrigerants containing chlorine and fluorine, ammonia has emerged as one of the most popular refrigerants that does not contribute to ozone depletion and global warming. The pressure drop in U-bend during two-phase flow is the subject of detailed review of the literature. Analysis and design of heat exchangers depend heavily on the reliable and accurate prediction of pressure drop in two-phase flow. Finned tube heat exchangers have parallel straight tubes that are joined by U-bends. The pressure drop data for R-12, R-22, R-410a, and R134a were principally used to develop the pressure drop models that are currently available for U-bends. The present study explores the applicability of available two-phase pressure drop correlation for ammonia at different curvature ratios and various mass fluxes. The two-phase pressure drop in U-bends predicted by available models is compared with the two-phase flow pressure drop in a straight tube predicted by the Muller-Steinhagen and Heck correlation. The findings indicate vast variations in the predicted pressure drop by various models for ammonia and puts a question mark for applicability of these correlation for ammonia. Since, no study in literature has been reported on two-phase pressure drop in U-bends for ammonia, there is a strong need to experimentally study the pressure drop in U-bends for ammonia under various conditions for reliable and effective design of heat exchangers.

Keywords: Ammonia, finned tube heat exchangers, two phase flow, U bends, mass fluxes

THE EFFECT OF CRYOLITE-BASED ELECTROLYSIS CELL WASTE ADDITION ON THE SINTERING BEHAVIOR OF FLY ASH

[1]ABDULLAH NOMAN AL-AWADHI, M. SERHAT BASPINAR

Afyon Kocatepe University , Faculty of technology, Metallurgy and Materials Engineering

al3wadhiabdullah@gmail.com, sbaspinar@aku.edu.tr

Abstract:

With the increase in environmental changes and weather fluctuations resulting from global warming, there are increasing calls to reduce industrial waste affecting the environment. Therefore governments have imposed large fees on waste dumping areas, as well as supporting scientific research that helps to recycle these wastes into useful materials. In this study, we took advantage of two types of industrial waste and recycled it using the classic structure of ceramics and made an alternative structure based on fly ash and electrolysis chamber waste to produce aluminum (cryolite) and bentonite as a binder. The effect of different amounts of waste (cryolite) addition on the sintered properties of the samples (mechanical and physical) was examined. It was concluded that waste addition enhanced the sintering properties of the fly ash. The addition of cryolite-based waste decreased the sintering temperature of the fly ash drastically.

Keywords: Fly Ash, Electrolysis chamber waste, recycling, Sintering, Ceramic

RESEARCH PROGRESS OF CHIRALITY DETECTION IN UESTC

MAOYAN WANG, SAMIRA NEMATI PEHRABAD, SIMIN HE, HAILONG LI

[1]SCHOOL OF PHYSICS, UNIVERSITY OF ELECTRONIC SCIENCE AND TECHNOLOGY OF CHINA, CHENGDU, CHINA

[2]SCHOOL OF ELECTRONIC SCIENCE AND ENGINEERING, UNIVERSITY OF ELECTRONIC SCIENCE AND TECHNOLOGY OF CHINA, CHENGDU, CHINA

wmybrimlhl@163.com

Abstract:

The chirality detection of chiral drugs, which contains two enantiomers showing different toxicities to cells, is important to determine the content of enantiomers in fields of the drug development, food environment, etc. Research progress of the chirality detection in the university of electronic science and technology of china is presented in this study. The chirality and refractive index detection methods including optical force, long period fiber gratings, surface plasmon resonance sensor, and orbital angular momentum are given. The complicated mechanisms between electromagnetic waves and chiral media are analyzed. This study is believed to provide guidance for detecting the chirality parameters of inhomogeneous materials.

Keywords: Chiral Drug, Sensor, Detection, Electromagnetic, Refractive Index

ICETAS