

# **Sixth Scientific Conference “Renewable Energy and Its Applications” 2018**

Journal of Physics: Conference Series Volume 1032

Karbala, Iraq  
21 – 22 February 2018

ISBN: 978-1-5108-6407-8  
ISSN: 1742-6588

**Printed from e-media with permission by:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571



**Some format issues inherent in the e-media version may also appear in this print version.**

Copyright© (2018) by the Institute of Physics  
All rights reserved. The material featured in this book is subject to  
IOP copyright protection, unless otherwise indicated.

Printed by Curran Associates, Inc. (2018)

For permission requests, please contact the Institute of Physics  
at the address below.

Institute of Physics  
Dirac House, Temple Back  
Bristol BS1 6BE UK

Phone: 44 1 17 929 7481  
Fax: 44 1 17 920 0979

[techtracking@iop.org](mailto:techtracking@iop.org)

**Additional copies of this publication are available from:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571 USA  
Phone: 845-758-0400  
Fax: 845-758-2633  
Email: [curran@proceedings.com](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

# Table of contents

## Volume 1032

The Sixth Scientific Conference "Renewable Energy and its Applications"

21–22 February 2018, Karbala, Iraq

Accepted papers received: 16 May 2018

Published online: 4 June 2018

### Preface

[The Sixth Scientific Conference "Renewable Energy and its Applications"](#)

[Peer review statement](#)

### Papers

[Study of structural and optical properties of the ferrite films prepared by chemical pyrolysis spray technique](#)

Gh. J. Alyasary, H. H. Almarmade and D. h. Altiee.....1

[Studying the Effect of Deposition Time on Optical Properties of CdS Thin Films](#)

R. A. Al-Wardy.....6

[Enhancement of MEH-PPV:CNT for H<sub>2</sub>S gas sensor](#)

I M Ibrahim, A H Khalid and M H A. Wahid.....17

[Design and Fabrication of Hydrogen Production System](#)

Yaseen H. Mahmood and Rafa Y. J. Al-Salih.....26

[Feasibility Study of a Solar Flat Plate Collector for Domestic and Commercial Applications under Iraq Climate](#)

H. K. Jobair, O. I. Abdullah and Z. M. Atyia.....34

[Experimental Study of Two Different Types of Solar Dish Characteristics and its Efficiency Based on Tikrit, Iraq Weather Conditions](#)

Yaseen H. Mahmood and Rafa Y. J. Al-Salih.....45

[Assessment of Solar Photovoltaic Potential in Iraq](#)

Mohammed T. Hussain and Emad J. Mahdi.....55

[Treatment of industries wastewater using solar light](#)

A H Ali, A A Risn and A Hussein.....74

[Preparation of Nanoparticles Copper Oxide using an Atmospheric-Pressure Plasma Jet](#)

Ahmed A Anber, Mohammed Sh Essa, Ghada A Kadhim and Shaymaa S Hashim.....82

[Synthesis of ZnS Quantum Dots for QDs-LED hybrid device with different cathode materials](#)

Ahmed F. Mohammed and Wasan R. Salah.....90

[Choosing of relevant low height for operation wind turbine over urban Baghdad city](#)

Monim H Al-Jiboori and Mina S Qassim.....100

[Determination of Radioactivity Levels, Hazard, Cancer Risk and Radon Concentrations of Water and Sediment Samples in Al-Husseiniya River \(Karbala, Iraq\)](#)

I. T. AL-Alawy, R. S. Mohammed, H. R. Fadhil and A. A. Hasan.....105

[Fabrication and Characteristics Study of Bismuth Oxide/Silicon Heterojunction for Photodetector Applications](#)

Hanaa Mohammed Ibrahim, Sana Juma Ali Al. Tamimi and Ahmed N. Abd.....123

[Potential of Renewable Energy in Al-Fourat Al-Awsat: Al Najaf City Case Study](#)

Ali H. Al-Hamdani, Abeer Faris Dawood, Khudhayer N. Abdullah, Hashim Mohammed Hasan, Mahdi Sarhan, Haider Shareef and Rawshan Tarik.....135

[Fractional variational iteration method for solving the hyperbolic telegraph equation](#)

H K Jassim and W A Shahab.....141

[Water battery cell of carbon - PMMA with Cu - Zn electrodes for green energy](#)

F I Mustafa, A K Al-Sudani and H H Al-Qazzaz.....150

[Biocompatibility, Bioactivity and Corrosion Resistance of Stainless Steel 316L Nanocoated with TiO<sub>2</sub> and Al<sub>2</sub>O<sub>3</sub> by Atomic Layer Deposition Method](#)

Muna Khethier Abbass, Sami Abualnoun Ajeel and Haitham Mohammed Wadullah.....158

[Preparation of high transmittance TiO<sub>2</sub> thin films by sol-gel technique as antireflection coating](#)

Mohammed Hadi. Shinen, S A A AlSaati and Fouad Z Razooqi.....173

[Effects of Annealing Temperature on Structural and Optical Properties Of CIGS Thin Films for Using in Solar Cell Applications](#)

Mohammed Abdulhur Kadhim Mankoshi, Falah I. Mustafa and Nora J. Hintaw.....184

[Characterization of CuInSTe/CdS Heterojunctions](#)

Bushra A. Hasan, Duua A. Umran and Mohammad Abdulhur Kadhim Mankoshi.....192

[Effect shapes of nanorods, nanowires and nanobelts TiO<sub>2</sub> on the degradation of MB photo catalyst.](#)

W J Aziz, R S Sabry and A K Jarallah.....206

[Physical properties of CdS/CdTe/CIGS thin films for solar cell application](#)

B A Ahmed, I H Shallal and F I mustafa AL-Attar.....213

[Novel Technique for Photovoltaic Solar Cell Efficiency Enhancements by Coating with Chlorophyll](#)

Dhafer Manea Hachim AL-Hasnawi, Ali Abdulabbas Abdullah and Furkan Kamil.....218

[Energy Harvesting from the Waste Heat of an Electrical Oven via Thermoelectric Generator](#)

Hasan T Hashim.....228

[Evaluate heat loss through windows by using Guarded Hot Box \(GHB\)](#)

H Humaish.....235

[Urinary excretion as a function of uranium concentration in bladder cancer patients using kinetic phosphorimetry analyzer](#)

Shafik S Shafik and Shaymaa M Qaddoori.....244

[Reflectivity effect of the PS on solar cell efficiency](#)

M.S. Mohammed and R. A. Shlaga.....255

[Effect of Thermal Variations on Some Nanostructural and Optical Characterizations of Element Oxides Compound \(Y<sub>2</sub>O<sub>3</sub>/Fe<sub>2</sub>O<sub>3</sub>\) Prepared Using Laser Ablation](#)

Noor al-huda Yaareb Kraidi, Saif M Al-Shirefy, Ayad F. Al-Kaim, Rafea Tuama Ahmed and Mohammad H. K. AL-Mamoori.....262

[Reduced Quadruple Transition Probability B\(E2\) for Some Oxygen Isotopes Using Different Interactions and Effective Charges](#)

Ahmed H. Ali and Akram M. Ali.....279

[Improve the performance of solar modules by reflectors](#)

Naseer K Kasim, Ahmed F Atwan and Fadhil Muhmood Eliewi.....286

[Ambient Decontamination by Non -Thermal Plasma in Atmospheric Pressure Air](#)

Mohammed Ubaid Hussein and Rana Talb Mohsen.....293

[Fabrication of Hydrophobic Nanocomposites Coating Using Electrospinning Technique For Various Substrate](#)

J H Talal, D B Mohammed and K H Jawad.....300

[Pyrolysis Conversion Reaction Mechanism of Sewage Sludge to Biofuel](#)

Itimad K. Al-asfoor, Maysoon J. Zaiter, Ethar M. Jassar and Milad A. Mahmood.....313

[The effect of solar eruption promulgation on the propagation of solar energetic particles](#)

Doha Al-Feadh, Ali AL-Bekheet and Wathiq Al-Ramdhan.....321

[Producing High Purity of Metal Oxide Nano Structural Using Simple Chemical Method](#)

M A Aseel, F H Itab and F M Ahmed.....327

[Effect of thermal annealing on properties of polycrystalline Titanium dioxide \(TiO<sub>2</sub>\) thin film prepared by simple chemical method](#)

Ali Hamid Abdulsada, Khudheir A. Mishjil and Ahmad N. Abd.....333

[Facile method to synthesis of anatase TiO<sub>2</sub> nanorods](#)

Aseel Adnan Ouda, Firas K. Mohamad Alosfur, Noor J. Ridha, Saleh H. Abud, Nibras Mossa Umran, Hayder H. Al-aaraji and Rajaa A. Madloul.....344

[Ablation of ZnO in liquid by Nanosecond Laser](#)

Hiba Basim Abbas Kadhim, Noor J. Ridha, Firas K. Mohamad Alosfur, Nibras M Umran, Rajaa Madlol, Khawla J. Tahir and Rafea T. Ahmed.....350

[The Role of PU Ratio on the Dielectric Properties of EP/PU Blends](#)

Ahmad A. Hasan.....358

[The Co-fermentation of Organic Substrates: A Review Performance of Biogas Production under Different Salt Content](#)

A A Alhraishawi and W K Alani.....369

[Borosilicate and Polyurethane as Materials for Lenses to Correct Human Presbyopia](#)

Ali H. Alhamdani, Hayder H. Al-aaraji, Maha. R. Abdul-Hussein and Rajaa A. Madloul.....383

[Influence of heat and mass transfer on inclined \(MHD\) peristaltic of pseudoplastic nanofluid through the porous medium with couple stress in an inclined asymmetric channel](#)

Mohammed R. Salman and Ahmed M. Abdulhadi.....398

[Concentrations of some heavy elements in fly ash samples from thermal electric power stations in the middle and south of Iraq](#)

Israa kamil Ahmed.....419

[Effect of substitution \(Al and P\) atoms in ZnO nanosheet on structural and electronic properties](#)

Nibras M Umran, Haneen A Rashed, Firas K. Mohamad Alosfura and Noor J. Ridha.....429



[Low-Lying States Properties of the Even-Even <sup>78</sup>Se and <sup>80</sup>Kr Isotopes](#)

Wisam N. Hussain and Fadhil I. Sharrad.....437

[Assessing land cover/use changes in Karbala city \(Iraq\) using GIS techniques and remote sensing data](#)

Enas Ali Mohammed, Zahra Yarub Hani and Ghufran Qais Kadhim.....444

[A comparison of resource allocation process in grid and cloud technologies](#)

Huda Hallawi, Jörn Mehnen and Hongmei He.....451

[Cryptographic system based on Unicode](#)

Noor D. AL-Shakarchy, Huda F. AL-Shahad and Dhamyaa A. AL-Nasrawi.....464

[Designing and conducting an empirical experiment comparing two web sites](#)

Wafaa S. AL-Baldawi.....477

[Impact of an on-line health safety exam on the students of college of science laboratories](#)

Ammar A. Altameemi and Ahmed H. Alrubai.....491

[Arabic text classification using master-slaves technique](#)

Zinah Abdulridha Abutiheen, Ahmed H. Aliwy and Kadhim B. S. Aljanabi.....500

[Mapping the Spatial Distribution of Crimes in Iraq](#)

Enas Ali Mohammed.....509

[Performance evaluation of CCM and TSCP routing protocols within/without data fusing in WSNs](#)

Haydar Abdulameer Marhoon, M. Mahmuddin, Shahrudin Awang Nor, Mohsin Hasan Hussein and Ahmed Sileh Gifal.....516

[Smart system for dust detecting and removing from solar cells](#)

Hussein A. Mohammed, Baha'a A. M. Al- Hilli and Intisar Shadeed Al-Mejibli.....528

[Photocatalytic Hydrogen Production on Nanocomposite of Carbon Nanotubes and TiO<sub>2</sub>](#)

Firas H. Abdulrazzak and Falah H. Hussein.....536

[Synthesis, Characterization and Antimicrobial Study of nickel\(II\),palladium\(II\),platinum\(II\),rhodium\(III\), cadmium\(II\) and zirconium\(IV\) complexes with \(E\)-1-\(benzo\[d\]thiazol-2-yl\)-4-\(hydroxy\(2-hydroxyphenyl\)methylene\)-3-methyl-1H-pyrazol-5\(4H\)-one](#)

Taghreed M. Musa, Mahmoud Najim Al-jibouri and Redhah I. Hussain Al-bayati.....548

[Microwave Synthesis of 2,3-Disubstituted-5-methyl-1,3-imidazolidines-4-one Bearing Benzothiazole Moiety and Elementarily Assessment of Their Antibacterial Action](#)

Zeid Hassan Abood, Hussein Ali Qabel and Hayder Raheem Ali.....561

[Synthesis and study the behavior of liquid crystalline phases of new heterocyclic compound from folic acid](#)

Eman Abdul Wahab Alkuwaity and Adraa Abdul Kadhim Wasaf.....570

[Corrosion conduct of Austenitic stainless steel 316L subjected to surface treatment](#)

Kharia Salman Hassan, Ahmed Ibrahim Razooqi and Munafhashim Ridha.....580

[Using Low Cost Membrane in Dual-Chamber Microbial Fuel Cells \(MFCs\) for Petroleum Refinery Wastewater Treatment](#)

Shrok Allami, Basher Hasan, Mutawer Redah, Hayder Hamody and Zainab D Abd Ali.....588

[Ammonia as Hydrogen Storage Media, Sustainable Method to Hydrogen Evolution](#)

Zainab D. Abd Ali, Shrok Allami and Basheer H. Jwad.....595

[Preparation Poly 4-Bromoaniline Thin Films by Electro Deposition Technique for Hydrogen gas sensor](#)

Ashwaq A. Jabor, Dr. Ahlam.M. Farhan, Dr.Abdul- Hussain K. Elttayef and Afrah A. Jabor.....605

[Spectrophotometric Determination of Mebeverine hydrochloride in pharmaceutical preparation via Ion Association Reaction](#)

Abdulbari Mahdi and Zainab Abas.....614

[Comparative study of nano iron catalysts in the presence of the crude polymer matrix and their cross link polymer in the Fischer-Tropsch synthesis](#)

Abdulqadier Hussien Al khazraji, O.S. Dementyeva, Z. Pastukhova, M.V. Kulikova and Vitaly. R. Flid.....623

[Synthesis, characterization of mixed- ligand complexes containing 2,2-Bipyridine and 3-aminopropyltriethoxysilane](#)

Hayder Hamied Mihsen and Nesser Kadham Shareef.....633

[Determination of Minor elements of Human Scalp Hair from Karbala, Iraq](#)

Joda A. Baker and N.I Ward.....645

[The QTAIM Approach to Chemical Bonding in Triruthenium Carbonyl Cluster:  \$\[\text{Ru}\_3\(\mu\text{-H}\)\(\mu\_{3-\kappa^2}\text{-Haminox-N,N}\)\(\text{CO}\)\_9\]\$](#)

Shatha Raheem Helal, Muhsen Abood Muhsen Al-Ibadi, Ahlam Hussein Hasan and Abrar Taha.....652

[Comparison of mixed Ultrasound waves with the extracts of \*Nerium oleander\* L. on the growth of cyprid barnacles \*Balanus amphitrite\* Amphitrite](#)

H M Kredy, M E Aldokheily and I H Khlewy.....663

[Determination of antimicrobial and antioxidants activity of Salvia przewalskii seed oil against pathogenic bacteria and fungi](#)

M Alsirrag and R Ali.....674

[Antibacterial activity of Pomegranate molasses \(alone and in combination with Ampicillin and Ciprofloxacin\) on multidrug resistant \*Serratia marcescens\*](#)

W AL-Wazni, R AL- qarraawi and S Jaber.....681

[Epidemiological study on \*Cryptosporidium\* among children in Basra Province-Iraq](#)

M Salim.....688

[Biotechnology and Biochemical Analysis Techniques to isolate Vanillin derivatives for Plum Fruit Tree \(I\)](#)

A. J. Mahrath, E. I. Yousif and T. H. Al-Mgheer.....693

[Effect of Crushing Speed Rate on Crashworthiness Parameters and Energy Absorption Capability of Composite Materials](#)

Hakim S. Sultan Aljibori, Firas K. Mohamad Alosfur and Noor J. Ridha.....703