

# **International Conference on Chemical and Environmental Engineering (ICEE-11)**

Journal of Physics: Conference Series Volume 2305

Online  
29-31 March 2022

ISBN: 978-1-7138-6032-7  
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.**

This work is licensed under a Creative Commons Attribution 3.0 International Licence.  
Licence details: <http://creativecommons.org/licenses/by/3.0/>.

No changes have been made to the content of these proceedings. There may be changes to pagination and minor adjustments for aesthetics.

Printed with permission by Curran Associates, Inc. (2023)

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

## **CHEMICAL & RADIATION DETECTION IN ENVIRONMENT**

Geology and Environmental Impact Assessment of Psammitic Gneiss and Lamprophyre Dykes at Wadi Sikait, South Eastern Desert, Egypt .....	1
<i>M. S. Kamar, A. M. El Tohamy, H. I. Mira, A. M. Ismail</i>	
Simulation of ozone concentrations inside <sup>60</sup> Co industrial irradiator.....	20
<i>Ali Noaman, Amal A. El Gamel</i>	
Study Matrix Densities Variation on Assay of <sup>137</sup> Cs & <sup>60</sup> Co using Gamma Spectrometric Analysis and Correction Equation.....	35
<i>Omar Abo-Bakr Omar, Sayed A. El-Mongy</i>	
Mineralogical Studies and Radioactivity on Stream Sediments Around Wadi Aidib Area, South Eastern Desert, Egypt .....	41
<i>M Hassan, M El Shafey, Bayoumi M B, O A Ebyan</i>	
Natural Radionuclide characterization on Baltim-El Burullus coastal sediments and their risk assessments.....	60
<i>A M Sallam, A A Faheim, Z A El-Elshafey, Shimaa Amamer, Mg El Feky</i>	
Radionuclide Content and Radiation Dose Rates of Uraniferous and Mineralized Granites at GV Occurrence in Gabal Gattar, Northeastern Desert, Egypt.....	74
<i>F M Abdelwahab, N H El Gendy, M Kh Barakat, M S Mohamed, A M El-Tohamy, R A El Terb, M G El Feky</i>	
Isotopic Ratio of Radionuclides in Natural Materials.....	89
<i>Fawzia Mubarak, Abdallah Ali</i>	

## **INDUSTRIAL AND ENVIRONMENTAL ENGINEERING**

Process simulation and optimization of dodecyl benzene sulfonic acid production plant.....	98
<i>Ahmed Fathy Mohamed, Waleed Abd El Azim Ibrahim El Sayed, Nabil Abdel Moneim, Faisal Hassan Sorour</i>	
Hybrid Hydro-pyrometallurgical Process for Zn Recovery from Electric Arc Furnace Dust.....	113
<i>R. A. Bayoumi, N. M. Abdelmonem, M. A. Soliman, I. M. Ismail, A. A. Refaat</i>	

## **NANOTECHNOLOGY AND CHEMICAL APPLICATIONS**

Kinetic Decomposition Models for Ammonium Perchlorate Hybrid Catalyzed with Nanothermite Particles .....	127
<i>Abdelaziz Hamed, Mohamed Gobara, Mohamed Mokhtar, Sherif Elbasuney</i>	
Utilization of Nano thin films for solar cell self-cleaning. ....	142
<i>Mariam Abu Elezz, Nabil Abdelmonem, Ibrahim Ismail, Amr Abdelghany</i>	
Smart, Self-cleaning coating Based Ultra-Hydrophobic Copolymer Nano-composites.....	157
<i>S. Ibrahim, A. Labeeb</i>	

Facile Synthesis and Catalytic Activity Assessment of Copper Chromite Nanoparticles for Ammonium Perchlorate Decomposition .....	176
<i>Shukri Ismael, A Deif, Ahmed Maraden, Sherif Elbasuney</i>	
Removal of Co(II) from Water Using Graphene Oxide Functionalized with TOPO .....	187
<i>Waleed F. Khalil, Ahmed Agha, R. A. Rayan</i>	
Gamma Radiation Synthesis and Characterization of Poly (Polyaniline /Glycidyl methacrylate) Containing TiO <sub>2</sub> Nanoparticles and Studying Their Physicochemical Properties. ....	195
<i>M Salah, M B El-Arnaouty, M Eid, El-Sayed Soliman, El-Sayed A Hegazy</i>	
Preparation and application of titanium dioxide nanoparticles in offset ink.....	204
<i>Sayed Sadek Ali, Yasser Kamal Abdel-Moneam, Mohammad Hegazy</i>	
A Mini-Review on Recent Developments in Metal-Organic-Frameworks (MOFs) Derived Carbon as A Microwave Absorption Materials (MAMs) .....	214
<i>Mohamed E. Elmowafy, Osama Abuzalat, Hesham Tantawy, Mohamed A. Elsayed</i>	

### **ENERGETIC MATERIALS AND ENVIRONMENTAL SCIENCE**

Sensitivity and Performance of Dinitroanisole (DNAN) in comparison with TNT .....	223
<i>Ahmed K. Hussein, Ahmed Elbeih, Mahmoud Abdelhafiz, Hesham S. Ahmed, Ahmed S. A. Shalaby, Ahmed Azazy, Ahmed Saleh</i>	
High Performance Sheet of PBX based on NTO.....	229
<i>Ahmed Elbeih, Mohamed Elnogomy, Tamer Elshenawy, Ahmed Saleh, Ahmed Azazy, Ahmed K. Hussein, M. G. Zaky, Hesham S. Ahmed</i>	
Recovery of valuable heavy minerals via gravity and magnetic separation operations from Diit Quaternary stream sediments, southern coast of the Red Sea, Egypt .....	236
<i>M M Fawzy, M S Abu El Ghar, I M Gaafar, A M El Shafey, M Diab, A W Hussein</i>	
A Novel Approach for Synthesis of Low Sensitive FOX-7 with a high % yield.....	250
<i>Mahmoud Abdelhafiz, Hosam E. Mostafa</i>	
Thermal behavior and explosive properties of TNT/RGO .....	262
<i>Ahmed Talaat, Ahmed Elbeih, Hesham Tantawy, Ahmed K. Hussein</i>	
Aziridine type bonding agents for composite solid rocket propellant .....	268
<i>Mohamed F. Eissa, Maraden Ahmed, M. Elhedery Tarek, M. Abd Elall Ali, E. Mostafa Hosam</i>	

### **POLLUTION AND ENVIRONMENTAL PROTECTION**

Process Engineering Design of Tobacco wastes Incinerator with Utilization of Heat Energy from Combustion Gases.....	275
<i>Asmaa Elmansy, N. Abdelmonem, Ahmed Shaaban, Amr Abdelghany</i>	
Removal techniques of ammonia from drinking water and wastewater in Egypt and developing countries: a review study .....	287
<i>Reham Samy, Nabil Abdelmonem, Ibrahim Ismail, Amr Abdelghany</i>	
Improving the Performance of Biological Tanks in Wastewater Treatment Plants by Modifying the Conventional Ceramic Aerator .....	311
<i>Ahmed Sobhy Khalil, Swellam Sharshir</i>	

Experimental and process design of a treatment system to remove Aluminium ions from lean sludge in an Egyptian water treatment plant.....	316
<i>Reham Samy, Amr Abdelghany, M. Hanafy, N. Abdel Monem, Mohamed M. El Bouraie</i>	
Compendium data and preliminary results based on alum sludge and gravel continuous fixed-packed-bed column substrate as sustainable practice for constructed wetland development in northern Egypt.....	328
<i>Maha A. Tony</i>	
Using biochar to control nitric oxide air pollution .....	345
<i>Ghada Osama Mohamed, Maher Elsayed Saleh, Elsayed Ahmed Shalaby, Ahmed Samir Elsafiy</i>	
Radiological and mineralogical studies on the coastal area between Port-Said and Damietta .....	365
<i>A. M. Osman, R. A. Seif, R. M. Attia, A. El-Azab, I. H. Khalifa</i>	
Air pollution remediation using synergetic coupling of AC/TiO <sub>2</sub> filter for benzene gas removal: regeneration and reuse of spent activated carbon after the treatment process .....	383
<i>E. F. Mohamed</i>	
Influence of Chemical Treatment on the Spectral and Thermal Behavior of Activated Carbon Obtained from Olive Oil Solid Waste.....	389
<i>Wael A A Elhelece</i>	
Radioactivity and Environmental Impacts of Granites from Um Ara, Southeastern Desert, Egypt .....	403
<i>El-Afandy A. H, Mohamed G. El-Feky, Samia H. Taha, S. M. El Minyawawi, H. A. Sallam, A. F. Tawfic, A. Omar, M. G. El-Samrah</i>	

## **RENEWABLE ENERGY AND SUSTAINABILITY**

Comparative Studies on Hydrometallurgy and Pyrometallurgy to the Extraction of Beryllium from Decrepitated Beryl from Wadi El Gemal Region, Eastern Desert, Egypt.....	416
<i>Mohamed Shabaan Atrees, Hamed I. E. Mira, Yasser M Kawassik, Mohamed E. M. Ali</i>	
Waste Cooking Oil Management in Egypt: Production of Biodiesel-Development of Rapid Test Method .....	423
<i>Marwa Mohamed, Nourhan Sherif, Omar Aboelazayem, Hany A. Elazab, Mamdouh Gadalla, Basudeb Saha</i>	
Multivariate-Parameters Effect of Dewatered Aluminium-Based Sludge in Catalytic Oxidation into Wastewater Treatment with A Special Strategy for Solar Energy Application .....	435
<i>Rahma H. Thabet, Mai K. Fouad, Shakinaz A. El Sherbiny, Maha A. Tony</i>	

## **ENVIRONMENTAL AND CHEMICAL REACTION ENGINEERING**

Study of Elastomeric Heat Shielding Materials for Solid Rocket Motor Insulation.....	447
<i>M Mosa, M. Mokhtar Kotb, H Fouda, Mohamed Gobara</i>	
Implementation of Mass Integration Design Concept for Material Preservation in Acrylonitrile Industry.....	474
<i>Nessren M Farrag, Ayat O Ghallab</i>	
Spectrophotometric and biological studies for the interaction of rifaximin with Co, Cu, Fe and vitamin C .....	489
<i>A. S. El-Kholany, H. A. Hafith, N. M. Gaber</i>	

Solar-driven Photocatalyzed Hydrogen Production from Water cleavage: Evaluation and Process Life Cycle Assessment .....	510
<i>Mohamed E. M. Ali, Mohammad M. Almutairi, Mohamed S. Mahmoud, Ebrahim Ismail, Yasser M. Khawassek, Mohamed S. Atrees</i>	

Implementing Nanocomposite Shear Thickening Fluid to Improve The Impact Resistance of Polyamide Fabrics Against Intermediate Velocity Projectiles .....	521
<i>Remon A Mankarious, Mostafa A Radwan, M H Roushdy</i>	

**Author Index**