

# **1st International Conference on Petroleum Technology and Petrochemicals 2019**

IOP Conference Series: Materials Science and Engineering  
Volume 579

Baghdad, Iraq  
10 – 11 April 2019

ISBN: 978-1-5108-9450-1  
ISSN: 1757-8981

**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. (2019)

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 579

**1st International Conference on Petroleum Technology and Petrochemicals**

**10–11 April 2019, University of Technology Campus, Baghdad, Republic of Iraq**

**Accepted papers received: 26 June 2019**

**Published online: 16 August 2019**

### **Preface**

[1st International Conference on Petroleum Technology and Petrochemicals](#)

[Peer review statement](#)

### **Papers**

[Performance Simulation for Gas Flow through a Porous Media in Packed bed Columns using CFD](#)

Asaad Salim Bded.....1

[Experimental Study on Tanuma Shale Stability Using Drilling Fluids with Different Additives](#)

Khalid Mohammed, Asawer A. Alwassiti and Mayssaa Ali Al-Bidry.....11

[Optimization of Drilling Parameters with Aid of Real Time Data for Buzargan Oil Field](#)

Khalid Hazem Hassan and Hassan A. H. Abdul Hussien.....24

[Improving Drilling Fluid Properties at High Pressure Conditions Using Selected Nanomaterials](#)

Nada Sabah, Asawer A. Alwasiti and Massara Salam.....33

[Applying Selected Lost Circulation Materials to Study Lost Circulation of Azkand Formation in Khabaz Oil Field](#)

Mazin J. Shabeeb, Asawer A. Alwasiti and Nada S. Al\_Zubaidi.....44

[Activation Iraqi bentonite for using as drilling mud](#)

A S Ibrahim and M A Al-Bidry.....55

[Better Hole Cleaning In Highly Deviated Wellbores](#)

Raed H. Allawi and Faleh H. M. Almahdawi.....70

[Smart Cement Modified with Nano Fly Ash and Micro Fiber for Oil Well Applications](#)

A A Abdul-hamead, F M Othman and D M Abdullah.....79

[The effect of some variables on the removal of synthetic bentonite suspension in water by electrocoagulation using turbidity measurements](#)

N A Al-Rubaiey and M G Albrazanjy.....88

[Zn/HY-Zeolite as a Catalyst for Upgrading Iraqi Heavy Crude Oil Using Aquathermolysis Method](#)

Amani Q. Saeed, Adel S. Hamadi and Bashir Y. Sherhan.....99

[The use of Mixed Bacterial Culture to improve the Biodegradation of Diesel Pollution](#)

N M Jabbar, A K Mohammed, S M Jabber and E H Kadhim.....116

[Decreasing the Sulfur Content of Crude Oil by Ultra-Sound and Activated Carbon Assisted Oxidative Method](#)

Tahseen Hameed Khlaif and Asaad Salim Bded.....125

[Environmental pollution control emitted from diesel engines by Al<sub>2</sub>O<sub>3</sub> nanoparticles](#)

Adel Sharif Hamadi and Ali Ghufran Khidhir.....132

[Specifications of Heavy Diesel Lubricating Oil Improved by MWCNTs and CuO as Nano-additives](#)

Thulfiqar N Jaber, Khalid A Sukkar and Abullhassan A Karamalluh.....142

[Performance enhancement of trickle bed reactor for the removal of organic compounds from petroleum industrial wastewater](#)

S A Al-Naimi, F T Al-Sudani and G D A Al-Rawi.....152

[Heavy metals concentration in the recent sediments along the sides of the road between Bangazi and Sirt Cities – Libya](#)

M A Basi, K F Abbas and M I Al-Sharqawi.....163

[Effect of Ce-promotion on iron catalysts activity through the synthesis of liquid fuels by the Fischer-Tropsch process](#)

F K AL-Zuhairi and W A Kadhim.....176

[Thermal Pyrolysis of Municipal Solid Waste \(MSW\)](#)

S I Hammoodi and R S Almkhtar.....183

[Tracking boil off gas generation into liquefied natural gas supply chain using HYSYS simulator](#)

S Z Najj, A A Abd and A S Hashim.....192

[Modeling and simulation of adsorption of methane, ethane, hydrogen sulfide and water from natural gas in \(FP\)YEu Metal–Organic Framework](#)

Thaer M. Al-Jadir and Flor R. Siperstein.....204

[Study the effect of organic promoters on thermodynamics behaviour for refrigerant gas clathrate hydrate](#)

Shurooq Talib Al Hemeri, Riyadh Sadeq Al Mukhtar and Mustafa Saadi Mohammed.....213

[Syngas formation by dry and steam reforming of methane using microwave plasma technology](#)

Nabil Majd Alawi, Gia Hung Pham, Ahmed Barifcani, Minh Hoang Nguyen and Shaomin Liu.....228

[Modify Chock Performance Equation for Tertiary Reservoir Wells in Khabaz Oil Field](#)

Haider A. Jumaah.....241

[Evaluation of Petrophysical Properties Using Imaging Techniques](#)

Ahmad A. Ramadhan, Hussien I.Z. Al-Sudani, Fadhil Sarhan Kadhim, Ayman Tariq and Muhammed Lutfy.....249

[Application of Geophysical Logs to Estimate the Source Rock Quantity in Ratawi Formation, Southern Iraq: A Comparison Study](#)

Rami M. Idan.....261

[Calculating heterogeneity of Majnoon Field/Hartha Reservoir using Lorenz Coefficient method](#)

J H Al-Joumaa and M S Al-Jawad.....269

[Increasing confidence in full field modelling and water flood planning for a giant reservoir under primary depletion through Material Balance modelling](#)

J H Al-Joumaa and M S Al-Jawad.....274

[Dynamic model of Tertiary reservoir in Khabaz Oil field](#)

Mohamad B. Mousa and Nabaz Qader.....280

[Low salinity water flooding in carbonate reservoirs – dissolution effect](#)

Y A Hadi, F Hussain and F Othman.....301

[Enhanced Recovery of Heavy Oil Using A Catalytic Process](#)

M M Hasan and S P Rigby.....317

[Study of different geostatistical methods to model formation porosity \(Case study of Zubair formation in Luhais oil field\)](#)

Jassim M. Al Musawi and Mohammed S. Al Jawad.....343

[Wells location effect on the underground gas storage in UM ERadhuma Formation-Ratawie oil field](#)

Hayder S. Fukaa Al asida and Sameera M. Hamd-Allah.....357

[Identifying hydrocarbon and shaly zones of Mishrif Formation in Nasiriya Oil Field by using well logs](#)

Ameer T. Hameed, AbdulAali A. Aldabaj and Ahmad A. Ramadhan.....366

[Porosity and Permeability Calculation Using NMR Logging in an Iraqi Oil Field](#)

Marwah Dhahir Abdulkadhim.....377

[Application of streamlines for improved waterflood management of iraqi's reservoir](#)

S al-musawi, M keshavarz moraveji, M Adnan and M Jawad.....384

[3D geological model of Nahr Umr/Ratawi oil field in Basra](#)

Mohammed Rashad Jemeel, Samahr A. Lazim, Sameera and M. Hamdullah.....393

[Modeling of Petrophysical Properties and Reserve Estimation of Mishrif Formation-Garraff Oil Field](#)

Ahmed T Abeed, Samaher A Lazim and Ramzy S Hamied.....410

[A New Algorithm for Foot-By-Foot Permeability and Irreducible water Saturation Estimation in Iraqi Limestone Reservoirs](#)

M Haider Qays and G Ruya Ahmed.....434

[Evaluation of Formation Capacity and Skin Phenomena of Mishrif Reservoir -Garraf Oil Field](#)

H A Baker, A Al-Rikaby and I S Salih.....445

[Skin and Reservoir Pressure Profiling Utilizing Production Logging](#)

H A Baker and I S Salih.....451

[Behavior of Swelling Soil Treated by Grid Geocell Columns under a Tank Footing](#)

Raid R. Al-Omari, Mohammed Y. Fattah and Haifaa A. Ali.....458

[Improving the Properties of Acrylic by Creating Crack Using Laser Beam](#)

R N Hwayyin and A S Hammood.....472

[The influence of pile groups configuration on its stability in dry sand under lateral loads](#)

Mohammed A. Al-Neami, Zeena W. Samueel and Marwah M. Al-Noori.....482

[The effect of coarse aggregate inclusion on the performance of reactive powder concrete exposed to oil products](#)

T S al-Attar, A S Ali and B S Al-Numan.....493



[A comparison of Al-Fe pillared Iraqi clays for Catalytic wet air oxidation](#)

G Y Al Kindi and F H AL Ani.....504

[Impact of Mixing process on the physical and Rheological Characteristics of Asphalt Binder Modified with Nano- Silica Powder](#)

Hussein H Zghair, Hasan H Joni and Maan S Hassan.....519

[Properties of self compacting concrete exposed to wetting and drying cycles in oil products](#)

S A Salih, W I Khalil and A A Ali.....532

[Response of Soft Soil Mixing with Recycled Gypsum \(Plasterboard\) as Stabilized Agent for Soil underneath oil tank as a case study](#)

A Al-Adili, N M Salim and K. Y. Al-Soudany.....549

[Evaluation of Soil Structure Interaction Effect for Tanks under Earthquake with Different Foundations Soils](#)

Mohammed Elwi and Marawan Mohammed.....560

[Linear and Non-Linear Stress Analysis for the Prediction of Fracture Toughness for Brittle and Ductile Material using ASTM E399 and ASTM E1290 By ANSYS Program package](#)

A A Nassar and E G Fayyad.....572

[New coumain derivatives as corrosion inhibitor](#)

Y K Al-Majedy, H H Ibraheem, M S Falih and A A Al-Amiery.....583

[New derivative of 1,2-Dihydropyridine-3-Carbonitrile as Corrosion Inhibitor](#)

Hiba H. Ibraheem.....593

[An Experimental Study for the effect of Water in Crude Oil on its Rheological Properties and Flow Characteristics](#)

Farhan Lafta Rashid and Samah Zaki Naji.....602

[An Overview on the Recent Techniques for Improving the Flowability of Crude Oil in Pipelines](#)

Raheek I Ibrahim, Manal K Odah and Amna Al-Mufti.....612