

Dr. Omar CHAALAL

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EDUCATION

New Castle Upon Tyne University England [1987-1990]

Ph.D. Chemical and Process Engineering , June 1990
Minor Mechanical Engineering
Thesis " A Study of Mixing in Aerated Vessels & Applications to Bioreactors"

Stevens Institute of Technology, Hoboken NJ, U.S.A [1981-1983]

MS Chemical Process and Design Engineering, May 1983
Thesis 'Parametric Studies in Membrane Processes'

Bridgeport University, Bridgeport, CT, U.S.A [1980-1981]

Els Certificate : English as a second language 1980-1981

Algerian Institute of Petroleum Algiers Algeria [1972-1977]

BS (Diplome d'Ingenieur) in Natural Gas Processing August ,1977
Thesis: Regeneration of M.E.A after reaction with CO₂

WORK EXPERIENCE

UAE University

Lecturer College of Engineering	8 1997- 2009
Associate Professor in the College of Engineering U.A.E University	8 1996-present

Water & Electricity Dept. Al-Ain

Expert in Water Quality & Desalination Plant	8/1996 -9/1997
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Tiaret University of Technology, Tiaret, Algeria

Department of Chemistry	
Associate Professor	9/1995 - 8/1996
Associate Professor	9/1990 - 8/1995
Lecturing undergraduate and graduate levels	1990 - 1995

New Castle Upon Tyne University England

Department of Chemical Engineering	
Computer Laboratory Assistant	
Lecturer Turbo-Pascal Programming	9/1986- 8/1990

Tiaret University of Technology, Tiaret, Algeria

Department of Mechanical Engineering	
Lecturer	9/1983 - 8/1986

National Company of Hydrocarbons (SONATRACH), Algeria

Camel Natural Gas Liquefaction plant Arzew Algeria	
Process: Engineer	1977-1979
Decarbonation and dehydration of Natural Gas	
Worked in the utility section: Production of vapor by flash distillation of seawater and electricity for CAMEL plant	
Instructor: <u>Teaching gas processing to the operators at CAMEL plant.</u>	

PROFESSIONAL ACTIVITIES

Tiaret University Tiaret Algeria

Head of Chemistry Department	9/1984-8/1986
President of the Scientific Council	9/1983-8/1985
Student Scientific Club Supervisor	9/1991-9/1992

CONSULTING

Ministry of Energy Algeria: Technical Consultant for Hydrocarbons and Hydraulics Mines Funding	9/1991-9/1992
Technical Consultant for the Algerian National Company of Hydrocarbons SONATRACH	9/1991-9/1992
Scientist advisor of Enpro Norway Oslo Environment Company based in Oslo	2003 -2008

COMMUNITY SERVICES

Research Advisor (Water Pollution)	9/1992-9/1993
Technical Consultant for Water Use: Municipality of Tiaret Algeria	1990-1994

United Arab Emirates Research Projects

1. Water project finance by King Abdul-Aziz University Saudi Arabia
Desalination of seawater, absorption of carbon di-oxide and production of irrigation water using a in a bench-scale reactor-membrane system

- Dr. Omar Chaalal Principal investigator
- Dr.. Md. Monowar Co-investigatior
- Dr. A. Soliman Co-investigator.

2. ADNOC Project No. 1-7-51/98. Advancement of Reservoir Simulation Techniques in View of UAE Needs.

- Professor Abdulrazag Zekri (co-investigator)
- Prof. Riadh Mhetheb
- Prof Jamal Aboukacem(co-investigator)
- **Dr. Omar Chaalal** (co-investigator)

3. Bioremediation of soils contaminated by oil spills in the UAE

1. Dr Farid BENYAHIA (principal investigator)
2. Professor Abdulrazag Zekri (co-investigator)
3. Dr Abdel Mohsen Mohamed (co-investigator),
4. Dr Mohamed Ahmed Abdulkarim (co-investigator),
5. **Dr Omar Chaalal** (co-investigator).

PUBLICATIONS

PATENTS

1. (2007/139392) A modified Solvay process, and uses thereof for processing co2-containing gas streams and for desalination.

Applicant: Enpro As (No) (All Except Us)| Chaalal Omar (Dz)

Inventor: Chaalal Omar(Dz) Application Date: 2007-05-30

Publication Date: 2007-12-06

2. (2007/094691) Method for handling saline water and carbon dioxide.

Applicant: Enpro As (No) (All Except Us)| Chaalal Omar (Dz)

Inventor: Chaalal Omar(Dz)

Application Date: 2007-02-16

Publication Date: 2007-08-23

JOURNAL PAPERS

1. O. Chaalal, D. Hank, A. M. Soliman, Ahmed Embaby, F. Benyahia. A Novel Membrane Bioreactor System for Nitrification Inhibition by Cadmium. International Journal of Environmental Monitoring and Analysis. Special Issue: Environmental Science and Treatment Technology. (2014)
2. O. Chaalal, Y. Zekri and Ahmed M. Soliman "A Novel Technique for the Removal of Strontium from Water using Thermophilic Bacteria in a Membrane Reactor" Journal of Industrial and Engineering Chemistry (2014)
3. Abdulrazag Y. Zekri, Omar Chaalal and Mamdouh T. Ghannam, "Cleanup of Offshore Emulsion Spill, an Experimental Approach", Energy Sources, Part A (2014).
4. Ahmed M. Soliman, Muftah H. El-Naasb , Omar Chaalal " Adsorption of Crystal Violet on Sludge produced from Refinery Wastewater Treatment: Characterization of Sludge Equilibrium and Kinetic Studies " International Journal of Chemical and Environmental Engineering (2013) , Volume 4, No.6
5. D. Hank a,*, Z. Azi , S. Ait Hocine , O. Chaalal , A. Hellal "Optimization of phenol adsorption onto bentonite by factorial design methodology" Journal of Industrial and Engineering Chemistry (2013)
6. Omar Chaalal "An Ace Technology for Natural Gas Sweetening and the New Global Warming Solution "Journal of Nature Science and Sustainable Technology " Volume 4, Issue 4 , 2011
7. Omar Chaalal " Co-Teaching of Physical Chemistry with Hands-On Methodology Journal of Nature Science and Sustainable Technology " Volume 4, Issue 4 , 2011
8. Muftah H. El-Naas □, Ali H. Al-Marzouqi, **Omar Chaalal** " A combined approach for the management of desalination reject brine 2and capture of CO2" Desalination 2010.
9. **Omar Chaalal** "Sweetening the deal" Hydrocarbon Engineering June 2009
10. I. Ikhlef, F. Soltani, A. Said and **O. Chaalal** "The Multi-Carrier DS-CDMA System in a Fading Rayleigh Channel with Multiples Access Interference' Journal of Information, Intelligence and Knowledge, 2009, pp. 69-90
11. Basu,A: Mustafiz, S,Benjordalen,N,; **Chaalal,O.** 'A COMPREHENSIVE APPROACH FOR MODELING SORPTION OF LEAD AND COBALT IONS THROUGH FISH SCALES AS AN ADSORBENT ' Source: Chemical Engineering Communications, Volume 193, Number 5, Number 5/May **2006**, pp. 580-605(26)
12. **Omar Chaalal**, and M. Tango "A New Technique of Solar Bioremediation *Energy Sources* Vol. 27, Number 4/March **2005**
13. F. Benyahya, M. Abbdkarim, A Zekri, **O. Chaalal** and H. Hassanain. "Bioremediation of crude oil contaminated soils: a black art or an engineering challenge?", *Process Safety and Environmental Protection*: vol 83(B4) pp364-370 (**2005**).

14. O. S. THIRUNAVUKKARASU; T. VIRARAGHAVAN; K. S. SUBRAMANIAN; **O. CHAALAL**; M. R. ISLAM Arsenic Removal in Drinking Water--Impacts and Novel Removal Technologies Energy Sources Vol. 27, Jan ,**2005** [View](#)
15. ABDULRAZAG ZEKRI; **Omar Chaalal** Effect of Temperature on Biodegradation of Crude Oil Energy Sources Vol. 27, Jan ,**2005** [View](#)
16. **Omar Chaalal** An Experimental Study of Fluid Motion in a Bioreactor Agitated by Line-Source Bubble Plumes Energy Sources Vol. 27, Jan ,**2005** [View](#)
17. **Omar Chaalal** A New Method to Investigate the Suspension of Solid Particles in Rectangular Tanks Agitated by a Source-Line Bubble Plumes By: O. Chaalal Journal: Energy Sources Jan ,**2005** [View](#)
18. **Omar Chaalal** and A. Zekri "Uptake of Heavy Metals by Microorganisms: An Experimental Approach Energy Sources Vol. 27 Jan ,**2005**. [View](#)
19. Mazmdouh T. Ghannam and **Omar Chaalal** 'Oil spill cleanup using vacuum technique' Fuel , May, **2003**, Pages 789-797
20. S. Mustafiz, A. Basu, A. Dowaidar*, **O. Chaalal***, "A novel method for heavy metal removal from water" Energy Sources Number 11/November 01,**2002**.
21. **O. Chaalal** et al. " Integrated management of radioactive strontium contamination in aqueous stream system' *Journal of Environmental Management* Vol.61,No.1,January(**2001**)
22. A.Y Zakri , R. Almehaideb and **O. Chaalal** " Enhanced Oil Recovery from UAE Limestone Reservoirs Using Bacteria Flooding an Experimental Approach Japanese Petroleum Institute Journal Vol. 44 no:5 (September) **2001**.
23. **O. Chaalal** and A. Dowaidar " A simple process for removing chloroform from water " *Am. Chem. Soc. (Chemical Innovation)*, Dec. **2000**
24. **O. Chaalal** et al. " Numerical and Experimental Modelling of Viscous Fingering During Liquid -Liquid Miscible Displacement" *J. Sc. and Pet. Eng.* May **2000**
25. **O. Chaalal**, A. Razki ' Use of thermophilic bacteria in a membrane reactor for removing lead from water an innovative technique ' *Sustainability in Desert Region, SDR-99*, 20-22 November, **1999**, U.A.E.
26. Al-Maghrabi, I.M.A., **Chaalal, O.**, and Islam. M.R., 1999, "Use of Thermophilic Bacteria for Bioremediation of Petroleum Contaminants", *Energy sources*, (**1999**).
27. J.R Buckhurst, **O. Chaalal** ,J.H Harker, J.C Hancock and Millstrom "Culture of Bacteria in Aerated Rectangular Tank Reactor" *Letters in Applied Microbiology* , Vol. 12 **1991** pp. 11-15
28. J.R Backhurst, **O. Chaalal** and J Harker, " Optimum Air Flow Rate For the Suspension of Larval Feed" *Aquacultural Engineering* 8/89,**1989** pp. 17-21.
29. **Chaalal Omar** and K. Kulicki "Construction of a Small Apparatus for the Purification of Sea Water" *AND DIDAKTYKA*, May **1987** pp. 23-27

REFERRED CONFERENCE PAPERS

1. O. Chaalal* and MD. Monwar Hossain "A two-step process for removal of carbon dioxide and production of desalinated water using ammoniated saline water" CHEMICA Conference Australia (2014).
2. Chaalal,O. "Sweetening the Deal " The IARU International Scientific Congress on Climate Change - Copenhagen on the 10 - 12 March 2009.
3. Abdulrazag Y. Zekri, **Omar Chaalal**, and Mamdouh Ghannam, "Cleanup of Offshore Emulsion Spill, an Experimental Approach" SPE International

- Conference on Health, Safety, and Environment in Oil and Gas Exploration and Production, 15-17 April 2008, Nice, France
4. El-Naas, M.H., Chaalal, O., Al-Marzouqi. A.H., "CO₂ Capture through Reactions with Desalination Reject Brine", *Clean Air* 2007, July 2-7, Portugal, 2007.
 5. El-Naas, M.H., Chaalal, O., Al-Marzouqi. A.H., "Controlling CO₂ Emission through Reactions with High Salinity Wastewater", *Waste Management and Minimization Congress*, Dubai, UAE, May 28-29, 2007.
 6. F.Benyahya, A. Mohamed, A. Zekri, OA. Mohamed, O. Chaalal " Bioremediation of Crude Oil Contaminated Soils: A black Art or Controllable Process" *Waste Symposium on Waste Treatment Technology (Thermal. Non-Thermal and Gas clean-up)* 29 June-2 July 2003.
 7. F.Benyahya, A. Mohamed, A. Zekri, OA. Mohamed, O. Chaalal "Bioremediation of crude oil contaminated soils: a black art or an engineering challenge, *7th World Congress of Chemical Engineering*, Glasgow (UK) 2005.
 8. F.Benyahya, A. Mohamed, A. Zekri, OA. Mohamed, O. Chaalal "Soil studies for bioremediation investigations in the Arabian Gulf region: the necessary, the desirable and the superfluous", *7th World Congress of Chemical Engineering*, Glasgow (UK) 2005.
 9. F.Benyahya, A. Mohamed, A. Zekri, OA. Mohamed, O. Chaalal "Insight into crude oil evaporation modeling and environmental impact assessment following inland oil spills in the Arabian Gulf region, *7th World Congress of Chemical Engineering*, Glasgow (UK) 2005
 10. Abdulrazag Y. Zekri O. Chaalal and " Thermal stress of carbonate rocks: An experimental approach." . *SPE paper no. 68777 Proc, SPE Western Regional Meeting Bakersfield, California* , U.S.A 28-30 March (2001)
 11. S. Mustafiz, A. Basu, A. Dowaidar*, O. Chaalal*, and M.R. Islam "A novel method for heavy metal removal" 51st Canadian Chemical Engineering Conference (October 14th—17th , 2001)
 12. Hayat El-Mahadi, O. Chaalal and Abdulrazag Y. Zekri " Use of sludge for removal of heavy metals from wastewater." . *SPE paper no. 0968, Proc, SPE ADIPEC 2000*, Abu Dhabi, UAE (2000)
 13. O.Chaalal, A. Zekri " A novel technique to investigate the suspension of solid in rectangular bioreactors" The First International Conference and Exhibition on Geotechnical Geo-environmental Engineering and Management in Arid Lands, 4-7 Nov, 2000 Al-Ain U.A.E
 14. A.Y Zakri , O. Chaalal " Biodegradation of oil spills under United Arab Emirates condition *SPE 61475, Annual Technical Meeting Conference and Exhibition in Stavanger, Norway* 25-28 June 2000.
 15. Z. Saghir, O. Chaalal and M.R. Islam "Experimental and Numerical Modeling Studies of Viscous Fingering", *CIM paper no. 99-35, 1999 CSPG and Petroleum Society Joint Convention, Calgary, Alberta, June 14-18.*
 16. O.Chaalal, A. Zakri and A.Khanbashi ' A novel Technique for the Removal of Strontium from Water using Thermophilic Bacteria in a Membrane Reactor ' *World Engineering Congress and Exhibition, Kuala Lumpur July 19-22 (1999)* Malaysia.
 17. A.Y Zakri , R. Almehaideb and O. Chaalal " Project of Increasing Oil Recovery from UAE Reservoirs Using Bacteria Flooding *SPE 56827, Annual Technical Meeting Conference and Exhibition in Houston, Texas* 3-8 October 1999

18. Z. Saghir, O. Chaalal and M.R. Islam "Experimental and Numerical Modeling Studies of Viscous Fingering", *CIM paper no. 99-35, 1999 CSPG and Petroleum Society Joint Convention, Calgary, Alberta, June 14-18.*
19. O. Chaalal and I. Viraraghavan "Arsenic in drinking Water Impacts and Removal Technologies " *49th Canadian Chemical Engineering Conference in Saskatchewan , Canada, 3-6 October , 1999*
20. O. Chaalal "An Experimental Study of fluid motion in a Bio-reactor Agitated by Line-Source Bubble Plumes " *49th Canadian Chemical Engineering Conference in Saskatchewan Canada, 3-6 October , 1999*
21. O. Chaalal et al. " A novel Process for Removing Strontium from Aqueous Streams. " *49th Canadian Chemical Engineering Conference in Saskatchewan , Canada, 3-6 October , 1999*
22. Al-Maghrabi, I, BinAqil, A., Chaalal, O., and Islam. M.R., 1997, "Thermophilic Bacteria in UAE Environment Can Enhance Biodegradation and Mitigate Wellbore Problems. SPE paper no. 49545, *Proc, SPE ADIPEC 98*, Abu Dhabi, UAE (1998)
23. M.R. Islam, O. Chaalal and J.H. Abou-Kassem. " Experimental and Numerical Study of Electromagnetic Heating of Carbonate Formation *SPE 49187*, Annual Technical Meeting Conference and Exhibition in New Orleans, Louisiana 27-30 September 1998.
24. Chaalal. O and Islam, M.R Co- Teaching of Physical Chemistry a Novel Approach ' *2nd. International Non- Renewable Energy Sources Congress* Dec. 12-17 (1998), Iran
25. Saghir, O. Chaalal and M.R. Islam " Numerical and Experimental Modeling of Viscous Fingering During Liquid -Liquid Miscible Displacement" *2nd. International Non- Renewable Energy Sources Congress* Dec. 12-17 (1998), Iran
26. Mamoum, M.B and Chaalal, O. " Co-Teaching of Organic Chemistry for Chemical Engineering and Petroleum Engineering Students: A Case Study at UAE University' *Presented in the 216th. National Meeting of the ACS Boston USA August 27-, 1998.*
27. O. Chaalal and Y. Pusterlik " How to teach mathematics to engineers: A Pragmatic Approach " *Premieres Journees de Mathematiques Paris 6 , France .dec. 1990* pp 45-55.

REGIONAL CONFERENCE PAPERS

1. O. Chaalal "Prediction of Water Velocities in Aerated Tanks Part I " *Second . International Meeting on Energetic Physics Bechar Algeria Nov. 1994* pp. 40-70
2. O. Chaalal and M. Mechmeche "A Numerical Analysis of Countercurrent Liquid Membrane Permeators" *3rd. Conference of Chemistry and Chem. Eng. Processes*, Anaba Algeria 5/1995 pp. 80-87
3. O. Chaalal and J. Backhurst "Hydrodynamic Model for the Movement Created an Air Curtain in an Aerated Reactor" *Premieres Journees de Mecaniques Chlef Algeria .dec. 1993* pp 45-55.

4. O.Chaalal " An Investigation of an Electrodialyser that Removes Salt and Minerales" *1st Conference on water held in Doha Qatar 21-22 March, 1997*
5. Al-Maghrabi, I.M.A., Chaalal, O., and Islam. M.R., 1998, "Use of Thermophilic Bacteria for Bioremediation of Petroleum Contaminants", *2nd. Annual Conference on Water Technology and Environment, Doha, Qatar, Dec.*
6. AlAwadhy, F.K., Chaalal, O., and Islam, M.R., 1998, "A Non-Fickian Model for Simulating Potassium Transport in Carbonate Formations", *2nd. Annual Conference on Water Technology and Environment, Doha, Qatar, Dec.*
7. AlAdhab, H.E., Chaalal, O., and Islam, M.R., 1998, "A Novel Water Purification Technique", *2nd. Annual Conference on Water Technology and Environment, Doha, Qatar, Dec.*
8. Al-Maghrabi, I.M.A., Chaalal, O., and Islam. M.R." A New Technique of Solar Bioremediation " *3rd Int. Conf. Solar Electricity Sharjah, UAE, March (1998)*
9. O.Chaalal, A. Razki ' Use of thermophilic bacteria in a membrane reactor for removing lead from water an innovative technique ' *Sustainability in Desert Region, SDR-99, 20-22 November, 1999, U.A.E.*
10. El-Naas, M.H., **Chaalal, O.**, Al-Marzouqi. A.H., "Management of Desalination Reject Brine through Reactions with CO₂", *The Eighth Annual UAE University Research Conference, Al-Ain, UAE, April 2007.*
11. **Chaalal O.** "New technique of desalination " *Middle East Waste and Water Congress Dubai 26th & 27th May 2007*
12. **Chaalal ,O** " Oil pills cleaning " *Middle East Waste and Water Congress Dubai 26th & 27th May 2008*

PROFESSIONAL AFFILIATIONS

Member of the Society of Chemical Engineering

Member of the Algerian Society of Chemistry

President of the Emir Abdelkader Cultural Association 1992-1995

RESEARCH INTEREST

- Water desalination
- Water purification: Extraction of radioactive elements from ground water
- Gas sweetening and gas Liquefaction
- Oil spills
- Membrane separation processes
- Global Warming

- Reaction engineering
- Desalination Process
- Bio-remediation
- Mixing and separation Aeration in Bio-reactors

COURSES TAUGHT

- **Mathematics or** : 1983-1986

Numerical Analysis and computer programming (FORTRAN and Pascal). University level.

- **Mathematics:** 1991-1995

Calculus I

- **Introduction to Chemical Engineering** 1997-1999

*Text book: Elementary Principles of Chemical Processes
Richard M. Felder and Ronald W. Rousseau.*

- **Principles of Chemical Engineering** 1997-1999

*Text book: Elementary Principles of Chemical Processes
Richard M. Felder and Ronald W. Rousseau.*

- **Chemical Reaction Engineering** 1998-1999

*Text Book: Chemical Reaction Engineering
Octave Levenspiel*

- **Advanced Separation Processes** 1997-1998, 2000-2001

*Text book: Equilibrium-Stage Separation Operations
in Chemical Engineering. Ernest J. Henley and J.D Seader*

- Organic Chemistry II and Engineering Applications
- Physical Chemistry II and Engineering Applications

Text book: Chemistry Principles and Reactions Masterton and Hurley

COURSES TAUGHT IN THE CRU

- *Engineering thermodynamics* 2007-2009
- *Programming visual basic* 2007
- *Linear Algebra* 2007-2009
- *General Chemistry* 2006 -2010

THESES SUPERVISION

Master Thesis

1-“ Control of CaCO_3 Reactions in Cement at High Temperatures “ By Brada Abdelkader Ecole National Polytechnic El-Harach Algiers. 1994

Under the supervision of **O.Chaalal**

2- “A Model for the Suspension of Solid Particles in Aerated Reactors” By Maazouz Mohamed Physics Department Universite de Bechar 1994

Under the supervision of **Omar Chaalal**

3- “Experimental Work on the Suspension of Solid Particles in Aerated Tanks” By Abdelaoui Mabrouka Physics Department Universite de Bechar

Under the supervision of **Omar Chaalal**

Ph.D THESIS SUPERVISION .

1-” An Investigation of Nitrates Transport in Ground Water” By Mohamed Billal

Under the supervision of O. Chaalal 1995-1998.

AWARDS

- Scientist Inventor Award Ministry of Higher Education Algeria 1987
- 1997 Research Award General Requirements Unit UAE University

COMPUTER SKILLS

Basic, Visual Basic. Fortran, Turbo Pascal, MS Office, WebCity and Black Board

LANGUAGES

- English, French and Arabic