

Dr. Mohammad W. Amer (PhD in Analytical Chemistry)

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Research Interests

- Specialized in separation sciences, chromatographic techniques and nuclear magnetic resonance spectroscopy.
- Using NMR (solid and/or liquid, 1D & 2D) for detailed structural analysis of the fuel and petroleum materials.
- Developing the methods of using Gas Chromatography with different detector (FID, TCD, FPD and MS) for analysis of gases and fuels.
- Developing the application of comprehensive and multidimensional GC coupled with different detectors (FID, FPD and MS) for oil class separation and detailed compound identification, especially for the sulfur compounds.
- Optimizing the condition of extraction of oil from organic rich rocks such as oil shale, torbanite, coal etc. by using high temperature high pressure reactors (autoclave).
- Producing biofuels as an alternative source of energy by using food wastes, agricultural residues etc.
- Environmental and food toxicology related to determination of inorganic metal ions or organic substances.
- Developed understanding on the adsorption-desorption mechanism of different metal ions in solutions.
- Using XRD, XPS, TGA, ICP, AAS and FTIR for detailed analysis of the organic and the inorganic residues.

Education

2013 Ph.D., Chemistry (Analytical-Chemistry), Monash University, Melbourne, Australia.
Dissertation title: Extraction of Oil from Oil Shale by New, More Environmentally Acceptable Methods. Supervisor Prof. Alan L. Chaffee and Prof. W. Roy Jackson.

2009 M.Sc., Chemistry (Environmental-Analytical-Chemistry), University of Jordan, Amman, Jordan. Dissertation title: Removal of Pb(II), Cd(II) and Zn(II) from Industrial Waste Water Using Jordanian Kaolinite Modified by Sodium Polyphosphate. Supervisors Prof. Fawwaz I. Khalili and Prof. Akl M. Awwad.

2005 B.Sc., Chemistry, Hashemite University, Zarqa, Jordan

Employment

Sep. 2015-Now Assistant Professor, Department of Chemistry, Faculty of Science, The University of Jordan, Amman, Jordan

2015 Part time Lecturer, Prince Hussein bin Abdullah II Academy of Civil Protection, Al-Balqa Applied University, Amman, Jordan

2013-2015 Researcher in Chemistry, Scientific Research Commission, Applied Sciences, Royal Scientific Society, Amman, Jordan

2010-2013 PhD Researcher, School of Chemistry, Monash University, Melbourne, Australia

2012-2013 Teaching Associate, School of Chemistry, Monash University, Melbourne, Australia

2005-2010 Analyst, Petrol and Lubricant laboratory, Industrial Chemistry Center, Royal Scientific Society, Amman, Jordan

2005 Chemical Analyst, Research and Development Department, , International Pharmaceutical Manufacturing Company, Amman, Jordan

Awards

- *Faculty of Science Dean's International Postgraduate Research Scholarship*, Monash University, Australia, October 2010.
- *School of Chemistry Stipend Scholarship*, School of Chemistry, Monash University, Australia, October 2010.
- *Postgraduate Publication Awards*, Institute of Graduate Research, Monash University, Australia, July 2013.

Membership

Member of Royal Australian Chemical Institute (RSC)

Member of The American Association for the Advancement in Sciences (AAAS)

Member of Brown Coal Innovation Australia (BCIA)

Grants

- 2015 Low temperature retorting of Jordanian oil shale, SRTD II (25000 Euro)
- 2015 Production of Sustainable Biobutanol as Green Gasoline of the Future, SRTD II (25000 Euro)
- 2015 Characterization of shale oil produce by direct and indirect heating methods, SRTD II (25000 Euro)
- 2014 Development a Process for Production Ultrafine Kaolin: Water-Based Paints, iR&Df/HCST (25200 JD)

Intrumental/apparatus skills

- High pressure autoclave : I have experience in operating high pressure autoclaves with a capacity of 27mL, 70mL, 100mL 500mL and 4L, including safety and risk assessment, experimental design, data calculation and interpretation
- Multidimensional GC for liquid : FID, FPD, MS for oil derived products from oil shale reaction
- GC for gas : TCD for the gases generated during high temperature reaction of oil shale
- X-Ray Photoelectron spectroscopy (XPS) : Experimental design, data calculation and interpretation
- ^1H & ^{13}C NMR for liquids and solids : Experimental design, data calculation and interpretation
- Thermogravimetric analyzer (TGA) : Experimental design (proximate and pyrolysis analysis), data calculation and interpretation including safety and risk assessment
- X-Ray Diffraction (XRD) : Experimental design, data calculation and interpretation
- ICP-MS : Experimental design, data calculation and interpretation
- UV-Vis Spectrophotometer : Experimental design, data calculation and interpretation
- XRF (sulfur analyzer) : Experimental design, data calculation and interpretation
- Karl Fischer Water Content, Viscosity, Pour Point, Calorific Value, Flash Point etc : Experimental design, data calculation and interpretation including safety and risk assessment

Peer-Reviewed Activity

- Journal Reviewer for *Fuel*
- Journal Reviewer for *Talanta*
- Journal Reviewer for *Fuel Processing Technology*
- Journal Reviewer for *Journal of Advances in Chemistry*

Publications

Book:

Mohammad Amer, Fawwaz Khalili and Akl Awwad. Heavy Metal Adsorption: Adsorption of lead, zinc and cadmium ions on polyphosphate-modified kaolinite clay, LAB LAMBERT Academic Publishing 2010, ISBN: 3838380266 (Germany).

Papers Published in Refereed Journals:

1. Mohammad W. Amer, Yi Fei, Marc Marshall, W. Roy Jackson and Alan L. Chaffee. Recovery of shale oil condensate from different oil shales using a flow through apparatus, *Fuel Processing Technology* 2015, 133: 167-172.
2. Mohammed W. Amer, Rafat Ahmad, Akl M. Awwad. Biosorption of Cu(II), Ni(II), Zn(II) and Pb(II) ions from aqueous solution by Robinia pseudoacacia pods powder, *International Journal of Industrial Chemistry* 2015, 6: 67-75.
3. Mohammad W. Amer, Yi Fei, Marc Marshall, W. Roy Jackson, Martin L. Gorbaty, Peter J. Cassidy and Alan L. Chaffee. The structure and reactivity of a low-sulfur lacustrine oil shale (Colorado U.S.A) compared with those of a high-sulfur marine oil shale (Julia Creek, Queensland, Australia), *Fuel Processing Technology* 2015, 135: 91-98.
4. Samer S. Abu-Alrub, Mohammad W. Amer and Saad A. Alkahtani. Adsorption of the Sudan dye (III) in methanol using activated carbon, *Journal of Advances in Chemistry* 2014, 10(10): 3291-3302.
5. Mohammad W. Amer, Yi Fei, Marc Marshall, W. Roy Jackson, Martin L. Gorbaty, Peter J. Cassidy and Alan L. Chaffee. A comparison of the structure and reactivity of five Jordanian oil shales from different locations, *Fuel* 2014, 119: 313-322.
6. Mohammad W. Amer, Blagoj Mitrevski, W. Roy Jackson, Alan L. Chaffee and Philip J. Marriott. Multidimensional and comprehensive two-dimensional gas chromatography of dichloromethane soluble products from a high sulfur Jordanian oil shale, *Talanta* 2014, 120: 55-63.
7. Blagoj Mitrevski, Mohammad W. Amer, Alan Chaffee, and Philip Marriott. Evaluation of comprehensive two-dimensional gas chromatography with flame photometric detection: potential applications for sulfur speciation in shale oil, *Analytica Chimica Acta* 2013, 803: 174-180.
8. Mohammad W. Amer, Yi Fei, Marc Marshall, W. Roy Jackson, Martin L. Gorbaty, Peter J. Cassidy and Alan L. Chaffee. Comparison of the yields and structure of fuels derived from freshwater algae (torbanite) and marine algae (El-Lajjun oil shale). *Fuel* 2013; 105: 83-89.
9. Yi Fei, Marc Marshall, W. Roy Jackson, Martin L. Gorbaty, Mohammad W. Amer, Peter J. Cassidy and Alan L. Chaffee. Evaluation of several methods of extraction of oil from a Jordanian oil shale, *Fuel* 2012; 92(1), 281-287.
10. Mohammad Al-Ghouti, Yahya Salim AL-Degees and Mohammad Amer. Application of chemometrics and FTIR for determination of viscosity index and base number of motor oils. *Talanta*, 2010, 81(3), 1096-1101.

11. Mohammad W. Amer, Fawwaz I. Khalili and Akl M. Awwad. Adsorption of Lead, Zinc, and Cadmium ions on Polyphosphate-modified Kaolinite clay. *Journal of Environmental Chemistry and Ecotoxicology*, 2010, 2(1), 001-008.
12. Mohammad A. Al-Ghouti, Yahya S. AL-Deges and Mohammad Amer. Determination of motor gasoline adulteration using FTIR spectroscopy and multivariate calibration. *Talanta*, 2008, 76(5), 1105-1112.

Papers in Preparation:

13. Mohammad W. Amer, Thomas Gengenbach, Marc Marshall, W. Roy Jackson and Alan L. Chaffee. Comparison between structural characteristics of oil shales and their kerogens using solid state ^{13}C NMR and XPS.
14. Mohammad W. Amer, Marc Marshall, W. Roy Jackson and Alan L. Chaffee. Isolation, characterization and reaction of five oil shale kerogens from three continents.

International Conferences:

1. Mohammad W. Amer, Yi Fei, Marc Marshall, W. Roy Jackson and Alan L. Chaffee. In: Proceedings of 34th Oil Shale Symposium, Golden, USA, 13-15 October 2014.
2. Mohammad W. Amer, Yi Fei, Marc Marshall, W. Roy Jackson and Alan L. Chaffee. 2nd Jordanian International Oil Shale Symposium, Dead Sea, Jordan: 14-15th April 2014.
3. Mohammad W. Amer, Blagoj Mitrevski, W. Roy. Jackson, Alan L. Chaffee and Philip Marriott. In: Proceedings of 33rd Oil Shale Symposium, Golden, USA, 14-16 October 2013.
4. Blagoj Mitrevski, Mohammad W. Amer, Alan L. Chaffee, Philip J. Marriott. In: Proceedings of the 20th RACI R&D topics conference in analytical and environmental chemistry, Deakin University, Geelong Australia 11-14 December 2012.
5. Mohammad W. Amer, Alan L. Chaffee, Yi Fei, Marshall M and W. Roy Jackson. Preprints - American Chemical Society, Division of Energy & Fuels (2012), 57(2), 32-33.
6. Mohammad W. Amer, W. Roy Jackson, Yi Fei, Marc Marshall, Martin L. Gorbaty, Peter J. Cassidy and Alan L. Chaffee. In: Proceedings of Jordan International Oil Shale Symposium, Dead Sea, Jordan: 7-9th May 2012.
7. Mohammad W. Amer, W. Roy Jackson, Yi Fei, Marc Marshall, Martin L. Gorbaty, Peter J. Cassidy and Alan L. Chaffee. In: Proceedings of 3rd Asia-Oceania Conference on Green & Sustainable Chemistry, Melbourne, Australia: 4-7 December 2011.
8. Mohammad W. Amer, W. Roy. Jackson, Marc Marshall, Philip Marriott, Blagoj Mitrevski and Alan L. Chaffee. In: Proceedings of Asia Pacific International Symposium on Microscale Separations and Analysis. Hobart, Australia: 27-30 November 2011.
9. W. Roy Jackson, Alan L. Chaffee, Marc Marshall, Yi Fei, Mohammad W. Amer and Peter J. Cassidy. In: Proceedings of 31st Oil Shale Symposium, Golden, USA, 17-21 October 2011.
10. W. Roy Jackson, Mohammad W. Amer, Yi Fei, Marc Marshall and Alan L. Chaffee. In: Proceedings of the International Conference in Coal Science and Technology, Oviedo, Spain: 9-13 October 2011.
11. Peter J. Redlich, Mohammad W. Amer, Alan L. Chaffee, Marc Marshall, W. Roy. Jackson, Frank P. Larkins, and Peter J. Cassidy. Preprints of Symposia - American Chemical Society, Division of Fuel Chemistry (2011), 56(2), 342-343.

12. Mohammad Al-Ghouti and Mohammad Amer, Regular and Super Gasoline Adulteration: Distillation and FTIR Studies. The 14th Arab Chemistry Conference & Exhibition (ACC-14) Tripoli-Libya 31 March – 4 April 2008.

References

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