

# GPC Publications 2018

### 4.3 Publications (2018)

#### 4.3.1 Patent Applications 2018

GPC researchers have filed or granted 5 QU patents this year. In addition, GPC researchers have 9 granted patents in 2018 from their previous work outside QU.

1. Anantram, Manjeri P., Md Golam Rabbani, Mahmoud M. Khader, Reza Nekovei, and Amit Verma. "Photodetector cell and solar panel with dual metal contacts and related methods." U.S. Patent 9,997,656, issued June 12, 2018.
2. Deina T. A., El-Naas, M. H., Electrocoagulation Cell Design. U.S. Patent Application 16/160,786, filed October 15, 2018.
3. Magzoub, M. I., Nasser, M. S., El-Naas, M. H., Utilization of Steel-Making Waste in Drilling Fluids Formulations. U.S. Patent Application 16/156,923, filed October 10, 2018.
4. Ratcha, Aditya Chandra Sai, Amit Verma, Reza Nekovei, and Mahmoud M. Khader. "Method for fabricating a heterojunction schottky gate bipolar transistor." U.S. Patent 9,911,889, issued March 6, 2018.
5. Abdullah, Aboubakr M., Vincenzino Vivacqua, Mohammed J. Al-Marri, Barry Azzopardi, Bijan Kermani, Ali Hassanpour, Buddhika Hewakandamby, and Mojtaba Ghadiri. "Compact electrocoalescer with conical frustum electrodes." U.S. Patent Application 15/816,603, filed May 24, 2018.

#### 4.3.2 Books and Book Chapters 2018

1. Al-Khalid, T., & El-Naas, M. H. (2018). Organic Contaminants in Refinery Wastewater: Characterization and Novel Approaches for Biotreatment. In Recent Insights in Petroleum Science and Engineering. InTech.
2. Zhang, Z., Borhani, T. N., & El-Naas, M. H. (2018). Carbon Capture. In Exergetic, Energetic and Environmental Dimensions (pp. 997-1016).
3. Zhang, Z., Ibrahim, M. H., El-Naas, M. H., & Cai, J. (2018). Zeolites Nanocomposite Membrane Applications in CO<sub>2</sub> Capture. In Handbook of Nanomaterials for Industrial Applications (pp. 916-921). Elsevier.
4. Zacharia, R., M. H. El-Naas, and M. J. Al-Marri, "Photocatalytic Oxidation of Non-Acid Oxygenated Hydrocarbons: Application in GTL Process", Chapter 15 in Water Management : Social and Technological Perspectives, Edited by Mutiu Kolade AMOSA , IQBAL M. Mujtaba , Thokozani Majozi, Taylor & Francis Ltd (2018). ISBN 9781138067240

#### 4.3.3 Journal Publications 2018

1. Abdelgawad, K. Z., Mahmoud, M., & Hussein, I. (2018). Stimulation of high temperature carbonate gas reservoirs using seawater and chelating agents: Reaction kinetics. Journal of Natural Gas Science and Engineering, 55, 595-605.

2. Abotaleb, A., El-Naas, M. H., & Amhamed, A. (2018). Enhancing gas loading and reducing energy consumption in acid gas removal systems: A simulation study based on real NGL plant data. *Journal of Natural Gas Science and Engineering*, 55, 565-574.
3. Ali, S., Al-Marri, M. J., Al-Jaber, A. S., Abdelmoneim, A. G., & Khader, M. M. (2018). Synthesis, characterization and performance of Pd-based core-shell methane oxidation nano-catalysts. *Journal of Natural Gas Science and Engineering*.
4. Al-Saydeh, S. A., M. H. El-Naas, S. J. Zaidi, Copper removal from industrial wastewater: A comprehensive review, *Journal of Industrial and Engineering Chemistry* 56 (2017) 35–44.
5. Al-Saydeh, S. A., S. J. Zaidi, M. H. El-Naas, Conversion of carbon dioxide: Opportunities and fundamental challenges, *American Journal of Engineering and Applied Sciences*, 2018, 11 (1): 138-153.
6. Altamash, T., Nasser, M. S., Elhamarnah, Y., Magzoub, M., Ullah, R., Qiblawey, H., ... & Atilhan, M. (2018). Gas solubility and rheological behavior study of betaine and alanine based natural deep eutectic solvents (NADES). *Journal of Molecular Liquids*, 256, 286-295.
7. Aslam, Z., Hussein, I. A., Shawabkeh, R. A., Parvez, M. A., Ahmad, W., & Ihsanullah. (2018). Adsorption kinetics and modeling of H<sub>2</sub>S by treated waste oil fly ash. *Journal of the Air & Waste Management Association*, 1-12.
8. Ba-Abbad, M. M., Takriff, M. S., Benamor, A., Nasser, M. S., Mahmoudi, E., & Mohammad, A. W. (2018). Synthesis and characterization of Sm<sup>3+</sup>-doped ZnO nanoparticles via a sol-gel method and their photocatalytic application. *Journal of Sol-Gel Science and Technology*, 85(1), 178-190.
9. Bader, N., Zacharia, R., Abdelmottaleb, O., & Cossement, D. (2018). How the activation process modifies the hydrogen storage behavior of biomass-derived activated carbons. *Journal of Porous Materials*, 25(1), 221-234.
10. Benamor, A., Mahmud, N., Nasser, M. S., & Tontiwachwuthikul, P. (2018). Reaction Kinetics of Carbon Dioxide with 2-Amino-1-butanol in Aqueous Solutions Using a Stopped-Flow Technique. *Industrial & Engineering Chemistry Research*, 57(8), 2797-2804.
11. Benamor, A., Talkhan, A. G., Nasser, M., Hussein, I., & Okonkwo, P. C. (2018). Effect of temperature and fluid speed on the corrosion behavior of carbon steel pipeline in Qatari oilfield produced water. *Journal of Electroanalytical Chemistry*, 808, 218-227.
12. Bouabidi, Z. B., El-Naas, M. H., & Zhang, Z. (2018). Immobilization of microbial cells for the biotreatment of wastewater: A review. *Environmental Chemistry Letters*, 1-17.
13. Buijs, W., Hussein, I. A., Mahmoud, M., Onawole, A. T., Saad, M. A., & Berdiyrov, G. R. (2018). Molecular Modeling Study toward Development of H<sub>2</sub>S-Free Removal of Iron Sulfide Scale from Oil and Gas Wells. *Industrial & engineering chemistry research*, 57(31), 10095-10104.
14. Buzatu, P., Qiblawey, H., Odai, A., Jamaledin, J., Nasser, M., & Judd, S. J. (2018). Clogging vs. fouling in immersed membrane bioreactors. *Water research*, 144, 46-54.
15. Di Bella, G., Di Trapani, D., & Judd, S. (2018). Fouling mechanism elucidation in membrane bioreactors by bespoke physical cleaning.
16. El Gamal, M., Mousa, H. A., El-Naas, M. H., Zacharia, R., & Judd, S. (2018). Bio-regeneration of activated carbon: A comprehensive review. *Separation and Purification Technology*, 197, 345-359.
17. Eliebid, M., Mahmoud, M., Hussein, I., Elkatatny, S., Shawabkeh, R., Sultan, A., & Al-Marri, M. J. (2018). Impact of Surfactant on the Retention of CO<sub>2</sub> and Methane in Carbonate Reservoirs. *Energy & Fuels*, 32(4), 5355-5363.

18. Eliebid, M., Mahmoud, M., Shawabkeh, R., Elkhatny, S., & Hussein, I. A. (2018). Effect of CO<sub>2</sub> adsorption on enhanced natural gas recovery and sequestration in carbonate reservoirs. *Journal of Natural Gas Science and Engineering*, 55, 575-584.
19. El-Naas, M. H., Zacharia, R., Zhang, Z., & Dindoruk, B. (2018). Editorial for the special issue (GPS, 2016): *Journal of Natural Gas Science and Engineering*.
20. Hena, S., Znad, H., Heong, K. T., & Judd, S. (2018). Dairy farm wastewater treatment and lipid accumulation by *Arthrospira platensis*. *Water research*, 128, 267-277.
21. Hussein, I. A., Onawole, A. T., Saad, M. A., Nimir, H. I., & Ahmer, M. E. (2018). Computational Screening of Potential Inhibitors of *Desulfobacter postgatei* for Pyrite Scale Prevention in Oil and Gas Wells. *bioRxiv*, 327957.
22. Ibrahim, M. H., El-Naas, M. H., Zhang, Z., & Van der Bruggen, B. (2018). CO<sub>2</sub> capture using hollow fiber membranes: A review of membrane wetting. *Energy & Fuels*, 32(2), 963-978.
23. Judd, S., & Turan, F. (2018). Sidestream vs immersed membrane bioreactors: a cost analysis. *Proceedings of the Water Environment Federation*, 2018(10), 3722-3733.
24. Judd, S., Odai, A., Buzatu, P., & Qiblawey, H. (2018). The Impact of Mechanically-Imposed Shear on Clogging, Fouling and Energy Demand for an Immersed Membrane Bioreactor. *Membranes*, 8(4), 104.
25. Kabalan, L., Zagho, M. M., Al-Marri, M. J., & Khader, M. M. (2018). Experimental and theoretical studies on the mechanical and structural changes imposed by the variation of clay loading on poly (vinyl alcohol)/cloisite® 93A nanocomposites. *Journal of Vinyl and Additive Technology*.
26. Kamal, M. S., Hussein, I., Mahmoud, M., Sultan, A. S., & Saad, M. A. (2018). Oilfield scale formation and chemical removal: A review. *Journal of Petroleum Science and Engineering*, 171, 127-139.
27. Kamal, M. S., Mahmoud, M., Hanfi, M., Elkhatny, S., & Hussein, I. (2018). Clay minerals damage quantification in sandstone rocks using core flooding and NMR. *Journal of Petroleum Exploration and Production Technology*, 1-11.
28. Khader, M. M., Al-Marri, M. J., Ali, S., & Abdelmoneim, A. G. (2018). Active and Stable Methane Oxidation Nano-Catalyst with Highly-Ionized Palladium Species Prepared by Solution Combustion Synthesis. *Catalysts*, 8(2), 66.
29. Khan, P. R., Durgaprasad, M., Reddy, S. G., Reddy, G. R., Hussein, I. A., & Reddy, B. V. (2018). IBX/KI Promoted Synthesis of 2, 5-Disubstituted 1, 3, 4-Oxadiazoles. *Letters in Organic Chemistry*, 15(1), 64-69.
30. Mahmoud, M., Ba Geri, B., Abdelgawad, K., Kamal, M. S., Hussein, I., Elkhatny, S., & Shawabkeh, R. (2018). Evaluation of the Reaction Kinetics of Diethylenetriaminepentaacetic Acid Chelating Agent and a Converter with Barium Sulfate (Barite) Using a Rotating Disk Apparatus. *Energy & Fuels*, 32(9), 9813-9821.
31. Mahmud, N., Benamor, A., Nasser, M. S., & Tontiwachwuthikul, P. (2018). Carbamate Formation and Amine Protonation Constants in 2-Amino-1-Butanol-CO<sub>2</sub>-H<sub>2</sub>O System and Their Temperature Dependences. *Journal of Solution Chemistry*, 47(2), 262-277.
32. Mehmood, U., Harrabi, K., Hussein, I. A., Shanmugam, N., Mekki, A., Mekki, M., & McLachlan, M. A. (2018). A study on stability of active layer of polymer solar cells: effect of UV-visible light with different conditions. *Polymer Bulletin*, 1-13.
33. Mehmood, U., Malik, M. I., Khan, A. U. H., Hussein, I. A., Harrabi, K., & Al-Ahmed, A. (2018). Effect of outdoor temperature on the power-conversion efficiency of newly synthesized organic photosensitizer based dye-sensitized solar cells. *Materials Letters*, 220, 222-225.

34. Mohamed, A. I., Hussein, I. A., Sultan, A. S., & Al-Muntasheri, G. A. (2018). Gelation of Emulsified Polyacrylamide/Polyethylenimine under High-Temperature, High-Salinity Conditions: Rheological Investigation. *Industrial & Engineering Chemistry Research*, 57(36), 12278-12287.
35. Mohamed, A. I., Hussein, I. A., Sultan, A. S., & Al-Muntasheri, G. A. (2018). Use of organoclay as a stabilizer for water-in-oil emulsions under high-temperature high-salinity conditions. *Journal of Petroleum Science and Engineering*, 160, 302-312.
36. Nwaoha, C., Tontiwachwuthikul, P., & Benamor, A. (2018). A comparative study of novel activated AMP using 1, 5-diamino-2-methylpentane vs MEA solution for CO<sub>2</sub> capture from gas-fired power plant. *Fuel*, 234, 1089-1098.
37. Nwaoha, C., Tontiwachwuthikul, P., & Benamor, A. (2018). CO<sub>2</sub> capture from lime kiln using AMP-DA2MP amine solvent blend: A pilot plant study. *Journal of environmental chemical engineering*, 6(6), 7102-7110.
38. Rahaman, M., Hussein, I. A., Aldalbahi, A., Parvez, A., & Soares, J. B. (2018). Erratum to: Synthesis of Metallocene Catalyzed Ethylene 1, 7-Octadiene Copolymer: Effect of Copolymerization on Polymer Properties. *Macromolecular Research*, 26(4), 394-394.
39. Rahaman, M., Hussein, I. A., Aldalbahi, A., Parvez, A., & Soares, J. B. (2018). Synthesis of Metallocene Catalyzed Ethylene 1, 7-Octadiene Copolymer: Effect of Copolymerization on Polymer Properties. *Macromolecular Research*, 26(4), 295-304.
40. Schulze, J., Shibl, M. F., Al-Marri, M. J., & Kühn, O. (2018). Reprint of "The effect of site-specific spectral densities on the high-dimensional exciton-vibrational dynamics in the FMO complex". *Chemical Physics*, 509, 163-169.
41. Shaikh, S. M., Nasser, M. S., Magzoub, M., Benamor, A., Hussein, I. A., El-Naas, M. H., & Qiblawey, H. (2018). Effect of electrolytes on electrokinetics and flocculation behavior of bentonite-polyacrylamide dispersions. *Applied Clay Science*, 158, 46-54.
42. Shehzad, F., Hussein, I. A., Kamal, M. S., Ahmad, W., Sultan, A. S., & Nasser, M. S. (2018). Polymeric surfactants and emerging alternatives used in the demulsification of produced water: A review. *Polymer Reviews*, 58(1), 63-101.
43. Steiger, P., Zhang, J., Harrabi, K., Hussein, I. A., Downing, J. M., & McLachlan, M. A. (2018). Hydrothermally grown ZnO electrodes for improved organic photovoltaic devices. *Thin Solid Films*, 645, 417-423.
44. Surkatti, R., M. H. El-Naas, Competitive interference during the biodegradation of cresols, *International Journal of Environmental Science and Technology* (2018), Volume 15, Issue 2, pp 301–308.
45. Teli, S. B., Benamor, A., Nasser, M. S., Ba-Abbad, M., & Mohammad, A. W. (2018). Influence of modified clay on the structure and performance of polysulfocomposite membrane. *Desalination and Water Treatment*, 120, 51-64.
46. Wang, T., Qiblawey, H., Judd, S., Benamor, A., Nasser, M. S., & Mohammadian, A. (2018). Fabrication of high flux nanofiltration membrane via hydrogen bonding based co-deposition of polydopamine with poly (vinyl alcohol). *Journal of Membrane Science*, 552, 222-233.
47. Younis, A., Ebead, U., & Judd, S. (2018). Life cycle cost analysis of structural concrete using seawater, recycled concrete aggregate, and GFRP reinforcement. *Construction and Building Materials*, 175, 152-160.
48. Youssry, M., Kamand, F. Z., Magzoub, M. I., & Nasser, M. S. (2018). Aqueous dispersions of carbon black and its hybrid with carbon nanofibers. *RSC Advances*, 8(56), 32119-32131.

49. Zacharia, R., Gomez, L. F., Chahine, R., Cossement, D., & Benard, P. (2018). Thermodynamics and kinetics of CH<sub>4</sub>/CO<sub>2</sub> binary mixture separation by metal-organic frameworks from isotope exchange and adsorption break-through. *Microporous and Mesoporous Materials*, 263, 165-172.
50. Zhang, X., Liu, H., Liang, Z., Idem, R., Tontiwachwuthikul, P., Al-Marri, M. J., & Benamor, A. (2018). Reducing energy consumption of CO<sub>2</sub> desorption in CO<sub>2</sub>-loaded aqueous amine solution using Al<sub>2</sub>O<sub>3</sub>/HZSM-5 bifunctional catalysts. *Applied energy*, 229, 562-576.
51. Zheng, K., Chen, Y., Sun, Y., Chen, J., Chábera, P., Schaller, R., ... & Pullerits, T. (2018). Inter-phase charge and energy transfer in Ruddlesden–Popper 2D perovskites: critical role of the spacing cations. *Journal of Materials Chemistry A*, 6(15), 6244-6250.
52. Znad, H., Al Ketife, A. M., & Judd, S. (2018). Enhancement of CO<sub>2</sub> biofixation and lipid production by *Chlorella vulgaris* using coloured polypropylene film. *Environmental technology*, 1-7.
53. Znad, H., Al Ketife, A. M., Judd, S., AlMomani, F., & Vuthaluru, H. B. (2018). Bioremediation and nutrient removal from wastewater by *Chlorella vulgaris*. *Ecological Engineering*, 110, 1-7.
54. Zsirai, T., Qiblawey, H., Buzatu, P., Al-Marri, M., & Judd, S. J. (2018). Cleaning of ceramic membranes for produced water filtration. *Journal of Petroleum Science and Engineering*, 166, 283-289.

#### 4.3.4 Conference Publications 2018

1. Mahmud, N., Benamor, A., Soliman, A., & Nasser, M. S. (2018, October). Thermal degradation of aqueous amine/amino acid solutions in the presence and absence of CO<sub>2</sub>. In IOP Conference Series: Materials Science and Engineering (Vol. 423, No. 1, p. 012154). IOP Publishing.
2. Kamal, M. S., Sultan, A., Hussein, I., Hussain, S. M., & AlSofi, A. M. (2018, August). Screening of Surfactants and Polymers for High Temperature High Salinity Carbonate Reservoirs. In SPE Kingdom of Saudi Arabia Annual Technical Symposium and Exhibition. Society of Petroleum Engineers.
3. Alfalah, S., Shibl, M., Verma, A., Nekovei, R., Khader, M., & Anantram, M. (2018, March). Effects of surface ligands on the optoelectronic properties of the silicon nanowire. In ABSTRACTS OF PAPERS OF THE AMERICAN CHEMICAL SOCIETY (Vol. 255). 1155 16TH ST, NW, WASHINGTON, DC 20036 USA: AMER CHEMICAL SOC.
4. Talkhan, A. G., Benamor, A., & Nasser, M. S. (2018, June). Corrosion Study of Carbon Steel in CO<sub>2</sub> Loaded Amine-Amino Acid Solutions-Case of Mixtures of N-Methyldiethanolamine and L-Arginine. In IOP Conference Series: Earth and Environmental Science (Vol. 164, No. 1, p. 012028). IOP Publishing.
5. Mohammad A. F., El-Naas M. H., Al-Marzouqi A. H., Al-Marzouq A., Suleiman M.I., Al-Musharfy M., Firmansyah T., CFD simulation of a novel gas-liquid reactor system, The 23rd International conference on Chemical Reactors (CHEMREACTOR-23), Ghent, Belgium, November 5-9, 2018.

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