



**Nashaat N. Nassar, PhD, P.Eng.**

Assistant Professor, An-Najah University  
Nablus, Palestine  
(On leave)

Schulich School of Engineering  
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**CAREER OBJECTIVES**

Chemical and Energy & Environmental Engineering Professor with teaching and research interests in:

1. Nanotechnology: Synthesis and applications.
2. Heavy oil upgrading: nanocatalysis, H<sub>2</sub>S, SO<sub>x</sub> and CO<sub>2</sub> capture; asphaltene adsorption, oxidation and gasification.
3. Modeling: Nanoparticle uptake, kinetic behavior of nanocatalysts agglomeration/deactivation, asphaltene adsorption isotherms, kinetics of thermal decomposition of asphaltenes.
4. Reactor design: reactors/adsorbers required for processes using nanocatalysts and asphaltene adsorption/processing.
5. Wastewater treatment and processes, e.g., adsorption, membrane ultrafiltration and chemical oxidation.
6. Air pollution controls, e.g., absorption, adsorption, and catalysis.
7. Solid waste management, e.g., aerobic and anaerobic digestions of biosolid, gasification of waste hydrocarbons.
8. Polymer Engineering: Synthesis and processing
9. Others, such as:
  - i. Effective teaching/education
  - ii. Project management and conference organizations
  - iii. Leadership management
  - iv. Business acumen

**ACADEMIC RECORDS**

2008-Present	<b>Advanced courses in Leadership and Project Management</b> , University of Calgary, Calgary, Alberta; including: Fundamentals of Project Management, Leadership Fundamentals, Human Behaviour in Organizations
2004-2008	<b>Doctor of Philosophy in Chemical Engineering</b> , University of Calgary, Calgary. Dissertation Title: <i>A Water-in-Oil Microemulsion Approach for In-Situ Preparation of High Concentrations of Colloidal Metal Oxide Nanocatalysts</i>
2001-2003	<b>Masters of Science in Chemical Engineering</b> , McGill University, Montreal, Quebec. Thesis Title: <i>Melt Exfoliation of Montmorillonite/Polystyrene Nanocomposites</i> .
1995-2000	<b>Bachelor of Science in Chemical Engineering</b> , An-Najah National University, Nablus, Palestine. Thesis Title: <i>Solid Olive Waste in Environmental Cleanup: Oil Recovery and Carbon Production for Water Purification</i> .

**PROFESSIONAL CERTIFICATES**

August, 2009	<b>Course Design Certificate</b> , Teaching and Learning Center, University of Calgary, Canada.
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November, 2007

**University Teaching Certificate (UTC)**, Teaching and Learning Center, University of Calgary, Canada

September-October, 2006

**Instructional Skills Certificate**, Teaching and Learning Center, University of Calgary, Canada

### **DISTINGUISHED ACHIEVEMENT AWARDS AND SCHOLARSHIPS**

1. **Natural Sciences and Engineering Research Council of Canada, NSERC IRDF Award 2009**, declined.
2. Nominated by the Schulich School of Engineering for the **President's Award** for excellence in student leadership, 2008.
3. **NSERC Nano-Innovation Platform travel grant award** to Trends in Nanotechnology conference (September 3<sup>rd</sup>-7<sup>th</sup>)/San Sebastian, Spain, May 2007
4. **Queen Elizabeth II Doctoral Scholarship, Open Graduate Competition Award**, Faculty of Graduate Studies, University of Calgary, AB, Canada May 1, 2007
5. **Ursula & Herbert Zandmer Graduate Award**, Faculty of Graduate Studies, University of Calgary, AB, Canada September 18, 2006
6. **Schulich School of Engineering Travel Award**, University of Calgary, June 2006 (to attend the 56<sup>th</sup> Canadian Chemical Engineering Conference, Sherbrooke, October 15-18, 2006)
7. **J.B. Hyne Graduate Scholarship Award, Open Graduate Competition Award**, Faculty of Graduate Studies, University of Calgary, AB, Canada April 17, 2006
8. **Graduate Teaching Fellowships**, Faculty of Graduate Studies, University of Calgary, AB, Canada, Fall, 2006
9. **Faculty of Graduate Studies, Graduate Travel Award** University of Calgary, Calgary, Canada November 14, 2005. (to attend the 55<sup>th</sup> Canadian Chemical Engineering Conference, Toronto, October 15-18, 2005)
10. **Best PhD Students Poster Award**, Trends in Nanotechnology 2005 Conference; Oviedo, Spain, August 31<sup>st</sup>, 2005
11. **NSERC Nano-Innovation Platform travel grant award** to Trends in Nanotechnology conference/Oviedo, Spain, June 2005
12. **Best Presentation Award**, Faculty of Engineering, University of Calgary, May 3<sup>rd</sup>, 2005
13. **Tuition Fee Waiver Award** for two Semesters, McGill University, Montreal, Canada 2001-2002
14. **Best Graduation Project Award**, An-Najah National University, Nablus, Palestine, June 2000
15. **Dean's List of Honor** for Six Semesters, An-Najah National University, Nablus, Palestine, 1995-2000

### **EDUCATIONAL ACTIVITIES**

**University of Calgary, Calgary, Canada**

**Instruction** (2006-present):

Taught the following graduate courses:

<b>Course</b>	<b>Number</b>	<b>Description</b>	<b>Term</b>	<b>Type</b>	<b>Enrollment</b>	<b>USRI* Overall</b>	<b>USRI* Dept Mean</b>
ENCH <sup>b</sup>	607	NATURAL GAS PROCESSING PRICIPLES	S12	LEC 01 Course Coordinator	60		
ENCH <sup>b</sup>	609	NATURAL GAS PROCESSING TECHNOLOGY	S12	LEC 01 Course Coordinator	60		
ENCH <sup>b</sup>	607	NATURAL GAS PROCESSING PRICIPLES	F11	LEC 01 Course Coordinator	30	5.86	5.69

Taught the following undergraduate courses

Course	Number	Description	Term	Type	Enrollment	USRI* Overall	USRI* Dept Mean
ENCH <sup>β</sup>	405	SEPARATION PROCESSES I	W12	LEC 01 Course Coordinator	120		
ENEE <sup>γ</sup>	505	EFFLUENT TREATMENT PROCESSES	F10	LEC 01 Course Coordinator	10	6.3	5.72
ENGG <sup>α</sup>	201	BEHAVIOR OF LIQUIDS GASES & SOLIDS	S11	LEC 01 Course Coordinator	30	-	-
ENGG <sup>α</sup>	201	BEHAVIOR OF LIQUIDS GASES & SOLIDS	S11	LAB 10 Course Coordinator	30	-	-
ENGG <sup>α</sup>	201	BEHAVIOR OF LIQUIDS GASES & SOLIDS	S11	TUT10 Course Coordinator	30	-	-
ENGG <sup>α</sup>	311	ENGINEERING THERMODYNAMICS	W11	LAB05 LAB06 LAB07 LAB08 LAB11 LAB12	21 22 20 14 24 20	- - - - - -	-
ENCH <sup>β</sup>	403	HEAT TRANSFER	F10	LAB01-08 Coordinator	130	-	
ENEE <sup>γ</sup>	505	EFFLUENT TREATMENT PROCESSES	F10	LEC 01 Course Coordinator	10	6.67	5.37
ENEE <sup>γ</sup>	505	EFFLUENT TREATMENT PROCESSES	F10	TUT 01 Course Coordinator	10	-	-
ENGG <sup>α</sup>	201	BEHAVIOR OF LIQUIDS GASES & SOLIDS	S10	LEC 01	30	6.0	5.1
ENGG <sup>α</sup>	201	BEHAVIOR OF LIQUIDS GASES & SOLIDS	S10	LAB 10	30	6.0	5.1
ENGG <sup>α</sup>	201	BEHAVIOR OF LIQUIDS GASES & SOLIDS	S10	TUT10	30	6.0	5.1
ENGG <sup>α</sup>	311	ENGINEERING THERMODYNAMICS	W10	LAB05 LAB06 LAB07 LAB08	28 26 30 29	- - - -	-
ENGG <sup>α</sup>	201	BEHAVIOR OF LIQUIDS GASES & SOLIDS	W10	LAB03 LAB04 LAB05 LAB06	23 24 25 25	- - - -	-
ENCH <sup>β</sup>	551	CHEMICAL ENGINEERING LABORATORY	F09	LAB05	15	-	-
ENEE <sup>γ</sup>	505	EFFLUENT TREATMENT PROCESSES	F09	LEC 01 Course Coordinator	20	4.7	5.4
ENEE <sup>γ</sup>	505	EFFLUENT TREATMENT PROCESSES	F09	TUT 01 Course Coordinator	20	4.7	5.4
ENGG <sup>α</sup>	311	ENGINEERING THERMODYNAMICS	W09	LAB03 LAB04 LAB13 LAB14	28 26 30 29	- - - -	-
ENPE <sup>δ</sup>	551	PETROLEUM	W09	LAB01	12	-	-

		ENGINEERING LABORATORY					
ENCH <sup>β</sup>	423	CHEMICAL ENGINEERING PROCESS DEVELOPMENT	W09	TUT 01	80+	-	-
ENPE <sup>δ</sup>	423	OIL & GAS ENGINEERING PROCESS DEVELOPMENT	W09	TUT 01	20+	-	-
ENCH <sup>β</sup>	315	CHEMICAL ENGINEERING PROCESS CALCULATIONS	F08	TUT 01	70+	-	-
ENCH <sup>β</sup>	551	CHEMICAL ENGINEERING LABORATORY	F08	LAB05	15	-	-
ENEE <sup>γ</sup>	505	EFFLUENT TREATMENT PROCESSES	F08	LEC 01 Course Coordinator	10	6.6	5.4
ENEE <sup>γ</sup>	505	EFFLUENT TREATMENT PROCESSES	F08	TUT 01 Course Coordinator	10	6.6	5.4
ENCH <sup>β</sup>	423	CHEMICAL ENGINEERING PROCESS DEVELOPMENT	W08	LEC 01	80+	-	-
ENPE <sup>δ</sup>	423	OIL & GAS ENGINEERING PROCESS DEVELOPMENT	W08	LEC01	20+	-	-
ENGG <sup>α</sup>	311	ENGINEERING THERMODYNAMICS	W08	LAB03 LAB04 LAB13 LAB14	28 26 30 29	- - - -	-
ENCH <sup>β</sup>	403	HEAT AND MASS TRANSFER	F07	LAB04 LAB05	15 15	- -	-
ENGG <sup>α</sup>	311	ENGINEERING THERMODYNAMICS	W07	LAB 01 LAB 02	30 28	- -	-
ENCH <sup>β</sup>	403	HEAT AND MASS TRANSFER	F07	LAB04 LAB05	15 15	- -	-

\*Universal Student Ratings of Instruction (USRI). Students evaluation: 7= excellent; 6= very good; 5= good; 4= satisfactory; 3= poor; 2= very poor; 1= unacceptable.

<sup>α</sup>: General Engineering, <sup>β</sup>: Chemical Engineering, <sup>γ</sup>: Environmental Engineering, <sup>δ</sup>: Oil and Gas Engineering

**An-Najah National University, Palestine**  
(2003-2004)

Taught the following undergraduate courses:

1. Heat Transfer (ECH 4334)
  - Covered topics related to heat transfer, such as: steady-state and unsteady-state conduction, principle of convection, relations for forced-convection, radiation, condensation and boiling, and heat exchanger design.
  - Supervised the laboratory work for this course
2. Fluid Mechanics (ECH 4333)
  - Covered the concepts of fluid mechanics, such as fluid statics, Euler/Navier Stock/ Bernoulli equations, velocity field, differential analysis of fluid flow, dimensional analysis, viscous flow, forces on immersed body, flow in porous media, piping system, pump design, etc.
  - Supervised the laboratory work for this course
3. Numerical Analysis for Engineers (ECH 4203)
  - Covered topics related to methods for solving linear algebraic equations, non-linear algebraic equations, linear and nonlinear ordinary differential equations (ODE), linear and nonlinear partial differential equations (PDE). Classification of PDE's, stability,

<p><b>McGill University, Montreal, Canada</b> (2001-2003)</p>	<p>consistency and convergence. Interpolation and extrapolation, and Optimization.</p> <ol style="list-style-type: none"> <li>4. Engineering Economy (ECH 4443) <ul style="list-style-type: none"> <li>- covered topics related to basic cost concepts, time value of money and discounted cash flow calculations, comparing alternatives, replacement analysis and life-cycle costing, etc.</li> </ul> </li> <li>5. Examined ten graduate students' final projects. Discussed and evaluated the projects and the presentations.</li> </ol> <p>Contributed towards teaching the following undergraduate courses:</p> <ol style="list-style-type: none"> <li>1. Introduction to Chemical Engineering (CHEE 200). Offered tutorials, evaluated students assignments and reports.</li> <li>2. Fluid Mechanics (CHEE 314). Offered tutorials, helped explaining the concepts for the students, guided them through their homework load, supervised the laboratory work, and evaluated students reports.</li> <li>3. Polymer Engineering (CHEE 582). Guided students through their homework load and evaluated their assignments.</li> <li>4. Pulp and Paper Engineering (CHEE 438). Guided students through their homework load and evaluated their assignments.</li> </ol>
<p><b>RESEARCH EXPERIENCE</b></p>	
<p><b>Alberta Ingenuity Centre for In-Situ Energy, Calgary, Canada</b> <i>November 2007 to present</i></p>	<p><b>Staff Researcher:</b> Catalysts for Bitumen Upgrading and Hydrogen Production Group</p> <ul style="list-style-type: none"> <li>• Working on multi-million-dollar funded projects, ranging from environmental remediation to energy production, to design and configure process for hydrogen production and waste processing to mitigate carbon emission. The main goal is to improve oil quality, reduce gaseous emissions and improve water recyclability.</li> <li>• Designed and configured process for hydrogen production and waste processing to mitigate carbon emission. The process consists mainly of the following reactors: column for de-asphaltene oil, catalytic steam gasification reactor for synthetic gas production, dry reforming of methane, and fixed bed reactor configuration for Fischer-Tropsch Synthesis (FTS) of diesel fuels.</li> <li>• Designed and constructed a complex adsorption experimental setup at SAGD conditions, which consists mainly of a packed-bed column reactor, gas handling and metering equipment, and a gas chromatograph.</li> <li>• Designed and constructed a continuous-reactor for using the prepared colloidal nanoparticles for heavy oil upgrading at SAGD conditions.</li> <li>• Developed an external mass transfer model to understand the adsorption kinetics of different thermally visbroken asphaltenes onto iron oxide nanoparticles.</li> <li>• Developed a mathematical model to understand the reaction kinetics of the thermal decomposition of asphaltenes at isothermal and non-isothermal conditions.</li> <li>• Studied and demonstrated the synthesis and application of metal/metal oxide nanoadsorbents/nanocatalysts for reducing the environmental footprints of oilsand industry.</li> <li>• Developed novel techniques for in-situ preparation of nanoadsorbents/nanocatalysts and applied the prepared nanoparticles for H<sub>2</sub>S and SO<sub>2</sub> capture, heavy oil upgrading, wastewater treatment and asphaltene adsorption and oxidation/gasification.</li> </ul>

	<ul style="list-style-type: none"> <li>• Developed fundamental adsorption/sorption/oxidation mechanisms for asphaltenes on nanoparticle surfaces and established the effects of operating conditions on these mechanisms.</li> <li>• Initiated novel ideas for creating energy from waste hydrocarbons.</li> <li>• Initiated a creative idea for asphaltenes removal from heavy oil matrix by employing novel <i>in-situ</i> prepared nano-adsorbents, which reduced the equilibrium time from days to less than 2 hours for more than 90% removal efficiency.</li> <li>• Applied the <i>in-situ</i> prepared nano-sorbents for removal of H<sub>2</sub>S<sub>(g)</sub> at simulated heavy oil reservoir condition, which resulted in 100% removal efficiency with a cost-effective technique in addition to decreasing the environmental impact of heavy oil upgrading.</li> <li>• Developed new technology for removal of heavy metals and organic contaminants from industrial wastewater using nano-adsorbents. Accordingly, 95 to 100% removal efficiency was achieved in less than 2 hours in comparison of 2 to 7 days for classical techniques.</li> <li>• Negotiated agreements for state-of-the-art laboratory instruments and material supplies, which ensured high degree of quality and services with cost savings.</li> <li>• Prepared applications and proposals, which received grant of \$30,000 for research conference program.</li> <li>• Trained 10 new staff members who met high technical research standards within 4 months.</li> <li>• Led a team of 12 people to plan an engineering research conference, which resulted in largest event in 4 years.</li> </ul>
<p><b>Department of Chemical Engineering, University of Calgary, Calgary, Canada</b></p> <p><i>November 2007 to present</i></p>	<p><b>Principal Investigator:</b> Carried out independent research pertaining to the application of nanoparticles for industrial wastewater treatment; namely:</p> <ul style="list-style-type: none"> <li>• Removal of heavy metals such as Pb<sup>2+</sup>, Ni<sup>2+</sup>, Cu<sup>2+</sup>, Co<sup>2+</sup> and Cd<sup>2+</sup></li> <li>• Removal of organic contaminants such as naphthenic acid, acid red 27, dispersive red, and methylene blue from wastewater.</li> </ul>
<p><b>Department of Chemical Engineering, University of Calgary, Calgary, Canada</b></p> <p><i>Sept 2004 to Nov 2007</i></p>	<p><b>Research Assistant:</b> <i>Preparation of Metal Oxide Nanoparticles by Using a Novel Microemulsion for Environment and Energy Applications; the work aimed at:</i></p> <ul style="list-style-type: none"> <li>• Developed a novel and cost-effective technique for <i>in-situ</i> formation and stabilizing metal oxide nanocatalysts in light crude oil for environment and energy applications.</li> <li>• Investigated the effect of oil conditions and operation variables on the maximum concentration and stability of <i>in-situ</i> formed nanocatalysts.</li> <li>• Developed a mathematical model which captures the effect of surfactant concentration, water content and concentration of precursor salt on the nanoparticle uptake.</li> <li>• Extended the developed technique to the formation of in-situ ultradispersed catalysts in heavy crude oil. This resulted in 95% removal of asphaltenes, 100% adsorption of H<sub>2</sub>S<sub>(g)</sub> and enhanced heavy oil upgrading.</li> <li>• Designed and constructed a sophisticated adsorption experimental setup, which consists mainly of continuous-reactor vessel, gas handling and metering equipment, and a gas chromatograph.</li> <li>• Used the prepared colloidal nanoparticles for heavy oil upgrading and wastewater treatment</li> <li>• Won more than 10 prestigious prizes and awards (more than \$ 30,000)</li> </ul>

	in total) for research accomplishment that led to 4 journal articles and 10 conferences.
<b>McGill University, Montreal, Canada</b> May 2001-June 2003	<b>Research Assistant:</b> <i>Polymeric Nanocomposites:</i> <ul style="list-style-type: none"> <li>• Conducted a comprehensive literature review pertaining to polymeric nanocomposites that resulted in optimizing different alternative methods for production of nanocomposites.</li> <li>• Designed and constructed torpedo attachment in a single screw extruder (SSE) to study the effect of various mixing arrangements on the quality of nanocomposites.</li> <li>• This resulted in optimized process parameters that used to produce high quality of nanocomposites with cost effective process.</li> <li>• Wrote 2 publications and 5 conference presentations</li> </ul>
<b>SCHOLARLY ACTIVITIES</b>	
<b>Research Support Schulich School of Engineering, University of Calgary, AB (2006-2008)</b>	<i>Funding Agencies:</i> Natural Sciences and Engineering Research Council of Canada, Nexen, Inc., Smart Camera, Inc., The City of Calgary, Schulich Activity Fund. <i>Dates:</i> May of 2006, 2007, and 2008 <i>Amount:</i> (\$30,000 /yr) <i>Project title:</i> The 3 <sup>rd</sup> , the 4 <sup>th</sup> , and the 5 <sup>th</sup> Annual Schulich School of Engineering Graduate Students Research Conference <i>Investigators:</i> Principle Investigator <i>Title:</i> Conference Chair/Event Coordinator <i>Activities:</i> Developed strong organization development, leadership, communications, advertising, problem solving, and teamwork skills through the following activities: <ul style="list-style-type: none"> <li>• Chaired the SSE research conference for three times in the years 2006-2008. Duties included: supervision, organization of steering committee meeting, assigning responsibilities for the organizing committee members, contacting industry for fundraising, sending calls for abstracts, constructing the conference website, etc.</li> <li>• Created and implemented conference plan; raised \$30,000 in cash and in-kind donations to fund a two-day conference benefiting local researchers; developed and managed budget; structured conference sessions, set event attendance and profit records.</li> <li>• Developed strategy and logistics for two-day conference, booking ten sessions with 300+ participants.</li> <li>• Developed and implemented keynote lectures held during conferences to serve the needs of students/researchers in their early research.</li> <li>• Developed organizational structure; staffed an executive committee of 10 and volunteer groups of 60 members in total to plan and implement the conferences.</li> <li>• Fostered values of teamwork and ownership within the groups; facilitated process for executive members and volunteers to define their mission within the organization and to create subsequent detailed action plans.</li> <li>• Designed and implemented best presentation award to forecast SSE conference throughout Alberta; developed roles, responsibilities, and statistical performance metrics to manage forecasting improvement.</li> <li>• Highlighted the conference major goals; namely: <ul style="list-style-type: none"> <li>○ Provided graduate and senior undergraduate students with</li> </ul> </li> </ul>

	<p>an opportunity to present their research to an audience of their peers, faculty members, and guests.</p> <ul style="list-style-type: none"> <li>○ Created an environment of discussion and feedback on research ideas.</li> <li>○ Highlighted research within the Schulich School of Engineering and promote the exchange of ideas among students and their peers.</li> <li>○ Allowed students and professors to learn from each other and to interact scientifically and socially.</li> <li>○ Informed public and private decision-making on the research conducted within the Schulich School of Engineering.</li> </ul>
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## PUBLICATIONS

(The corresponding author is noted with an asterisk “\*”)

### Journal Papers (Peer Reviewed)

#### In preparation:

1. **Nassar\***, N. N., 2012. A comparative study on adsorption and catalytic oxidation of asphaltenes onto different phases of iron oxide nanoparticles, *Journal of Colloid and Interface Science*.
2. **Nassar\***, N. N., 2012. Effect of surface basicity of aluminas on catalytic oxidation of naphthanic acid in produced water, *Journal of Colloid and Interface Science*.
3. **Nassar\***, N. N., 2012. Comparative adsorption and catalytic oxidation of ionic and non-ionic hydrocarbons onto different types of iron oxide nanoparticles. *Journal of Colloid and Interface Science*.
4. **Nassar\***, N. N., 2012. Synergistic effect multi-metal oxide nanoparticles on enhanced adsorption and catalytic oxidation of asphaltenes. *Langmuir*
5. **Nassar\***, N. N., Hassan, A., Pereira-Almao, P. 2012. Adsorption and oxidation of asphaltenes onto TiO<sub>2</sub>, ZrO<sub>2</sub> and CeO<sub>2</sub> nanocatalysts, *Industrial & Engineering Chemistry Research*.
6. **Nassar\***, N. N., Hassan, A., Pereira-Almao, P. 2012. Evaluation of the activation energy and prediction of the isothermal conversion of thermal decomposition of Athabasca Bitumen by different isoconversional methods. A comparative study, *Energy & Fuels*.
7. **Nassar\***, N. N., German Luna, 2012. Modeling the Kinetic Mechanisms of the Catalytic and Uncatalytic Thermo-Oxidative Decomposition of Asphaltenes, *Industrial & Engineering Chemistry Research*.

#### Submitted:

1. **Nassar\***, N. N. 2011. “Editorial for a Special Edition: Nanocatalysts for Energy and Environmental Applications”, *Current Catalysis*, (Proposal submitted).

#### Published:

2. Hashemi, R., **Nassar\***, N. N., Pereira-Almao, P. 2012. In situ Upgrading of Athabasca Bitumen Using Multimetallic Ultra-Dispersed Nanocatalysts in a in an Oil-Sands-Packed Bed Column: Part 1, Produced Liquid Quality Enhancement. *Energy & Fuels* (submitted)
3. Hashemi, R., **Nassar\***, N. N., Pereira-Almao, P. 2012. In situ Upgrading of Athabasca Bitumen Using Multimetallic Ultra-



Dispersed Nanocatalysts in an Oil-Sands-Packed Bed Column: Part 2, Reduction in CO<sub>2</sub> emission and coke deposition, *Energy & Fuels* (submitted)

4. Hassan, A., F. Lopez-Linares, **Nassar\***, **N. N.**, L. Carbognani-Arambarri, Pereira-Almao, P. 2012. Development of a support for NiO catalysts for selective adsorption and post-adsorption catalytic steam gasification of thermally converted asphaltenes. **Catalysis Today (in press).**
5. **Nassar\***, **N. N.**, Hassan, A., Luna, G., Pereira-Almao, P. 2012. Kinetics of the catalytic thermo-oxidation of asphaltenes at isothermal conditions on different metal oxide nanoparticle surfaces. **Catalysis Today (in press).**
6. Hashemi, R., **Nassar\***, **N. N.**, Pereira-Almao, P. 2012. Transport Behavior of Multimetallic Ultra-Dispersed Nanoparticles in an Oil Sands-Packed Bed Column at High Temperature and Pressure, *Energy & Fuels* 26 (3), pp 1645–1655.
7. **Nassar\***, **N. N.**, Hassan, A., Pereira-Almao, P. 2012. Iron oxide nanoparticles for rapid adsorption and enhanced catalytic oxidation of thermally cracked asphaltenes. *Fuel*, 95, 257-262.
8. **Nassar\***, **N. N.**, Ringsred, A. 2011. Rapid adsorptive removal of methylene blue from aqueous solutions by goethite nanoparticles. *Environmental Engineering Science* (in press).
9. **Nassar\***, **N.N.**, Hassan, A., Pereira-Almao, P. 2011. Thermogravimetric studies on catalytic effect of metal oxide nanoparticles on asphaltene pyrolysis under inert conditions. *Journal of Thermal Analysis and Calorimetry*, 1-6.
10. **Nassar\***, **N. N.**, Hassan, A., Pereira-Almao, P. 2011. Effect of the particle size on asphaltene adsorption and catalytic oxidation onto alumina particles, *Energy & Fuels* 25 (9), 3961-3965.
11. **Nassar\***, **N. N.** 2011. Kinetics, equilibrium and thermodynamic studies on the adsorptive removal of nickel, cadmium and cobalt from wastewater by superparamagnetic iron oxide nanoadsorbents. *Canadian Journal of Chemical Engineering. In Press.*
12. **Nassar\***, **N. N.**, Hassan, A., Pereira-Almao\*, P. 2011. Effect of surface acidity and basicity of aluminas on asphaltene adsorption and oxidation. *Journal of Colloid and Interface Science*, 360, 233-238.
13. **Nassar\***, **N. N.**, Hassan, A., Pereira-Almao\*, P. 2011. Comparative oxidation of adsorbed asphaltenes onto transition metal oxide nanoparticles. *Colloids and Surfaces A: Physicochemical and Engineering Aspects*, 384, 145-149.
14. **Nassar\***, **N. N.**, Husein, M. M., Pereira-Almao, P. 2011. **Invited contribution:** In-Situ prepared nanoparticles in support of oilsands industry meeting future environmental challenges *Exploration and Production: Oil and Gas Review* 9 (2), 46-48.
15. **Nassar\***, **N. N.**, Hassan, A., Pereira-Almao\*, P. 2011. Application of Nanotechnology for Heavy Oil Upgrading: Catalytic Steam Gasification/Cracking of Asphaltenes. *Energy & Fuels* 25, 1566-1570.
16. **Nassar\***, **N. N.**, Hassan, A., Pereira-Almao\*, P. 2011. Metal Oxide Nanoparticles for Asphaltene Adsorption and Oxidation. *Energy & Fuels* 25, 1017-1023. (Top 10 Most Read Article for Q1 2011).
17. **Nassar\***, **N. N.** 2010. Study and Modeling of Metal Oxide Solubilization in (w/o) Microemulsions. *Journal of Dispersion Science and Technology* 31, 1714-1720.

	<p>18. <b>Nassar*</b>, <b>N. N.</b> 2010. Rapid removal and recovery of Pb(II) from wastewater by magnetic nanoadsorbents. <i>Journal of Hazardous materials</i> 184, 538-546. (Ranked the 2<sup>nd</sup> among the top 40 articles written in the same field)</p> <p>19. <b>Nassar*</b>, <b>N. N.</b> 2010. Asphaltene Adsorption onto Alumina Nanoparticles: Kinetics and Thermodynamic Studies. <i>Energy &amp; Fuels</i> 24, 4116-4122.</p> <p>20. <b>Nassar*</b>, <b>N. N.</b> 2010. Kinetics, Mechanistic, Equilibrium, and Thermodynamic Studies on the Adsorption of Acid Red Dye from Wastewater by <math>\gamma</math>-Fe<sub>2</sub>O<sub>3</sub> Nanoadsorbents. <i>Separation Science and Technology</i> 45, 1092-1103.</p> <p>21. <b>Nassar*</b>, <b>N. N.</b>, Pereira-Almao, P. 2010. Capturing H<sub>2</sub>S<sub>(g)</sub> by In Situ-Prepared Ultradispersed Metal Oxide Particles in an Oilsand-Packed Bed Column. <i>Energy &amp; Fuels</i> 24, 5903-5906.</p> <p>22. <b>Nassar*</b>, <b>N. N.</b>, Husein, M. M., Pereira-Almao, P. 2010. Ultradispersed particles in heavy oil: Part II, sorption of H<sub>2</sub>S<sub>(g)</sub>. <i>Fuel Processing Technology</i> 91, 169-174.</p> <p>23. <b>Nassar</b>, <b>N. N.</b>, Husein, M. M. 2010. Ultradispersed particles in heavy oil: Part I, preparation and stabilization of iron oxide/hydroxide. <i>Fuel Processing Technology</i> 91, 164-168.</p> <p>24. Husein, M. M., Patruyo, L., Pereira-Almao, P., <b>Nassar</b>, <b>N. N.</b> 2010. Scavenging H<sub>2</sub>S<sub>(g)</sub> from oil phases by means of ultradispersed sorbents. <i>Journal of Colloid and Interface Science</i> 342, 253-260.</p> <p>25. Husein, M. M., <b>Nassar</b>, <b>N. N.</b> 2008. <b>Invited contribution:</b> Nanoparticle preparation using the single microemulsions scheme. <i>Current Nanoscience</i> 4, 370-380.</p> <p>26. <b>Nassar</b>, <b>N. N.</b>, Husein, M. M. 2007. Effect of microemulsion variables on copper oxide nanoparticle uptake by AOT microemulsions. <i>Journal of Colloid and Interface Science</i> 316, 442-450.</p> <p>27. <b>Nassar</b>, <b>N. N.</b>, Husein, M. M. 2007. Study and modeling of iron hydroxide nanoparticle uptake by AOT (w/o) microemulsions. <i>Langmuir</i> 23, 13093-13103.</p> <p>28. El-Hamouz, A., Hilal, H. S., <b>Nassar</b>, <b>N.</b>, Mardawi, Z. 2007. Solid olive waste in environmental cleanup: Oil recovery and carbon production for water purification. <i>Journal of Environmental Management</i> 84, 83-92.</p> <p>29. <b>Nassar</b>, <b>N. N.</b>, Husein, M. 2006. Preparation of iron oxide nanoparticles from FeCl<sub>3</sub> solid powder using microemulsions. <i>physica status solidi (a)</i> 203, 1324-1328.</p> <p>30. <b>Nassar</b>, <b>N. N.</b>, Utracki, L., Kamal, M. 2005. Melt intercalation in montmorillonite/polystyrene nanocomposites. <i>International Polymer Processing</i> 20, 423-431.</p>
<p><b>Book Chapters (Peer Reviewed)</b></p>	<p>31. <b>Nassar*</b>, <b>N. N.</b> 2011. Metal oxide nanoparticles for adsorptive removal of metal ions from wastewater: An overview, in: <u>Nanoparticles</u>, A. Hisham, Ed., INTECH (<i>Proposal accepted</i>).</p> <p>32. <b>Nassar*</b>, <b>N. N.</b> 2011. Iron oxide nanoadsorbents for removal of various pollutants from wastewater: An overview, in: <u>Application of Adsorbents for Water Pollution Control</u>, A. Bahtnagar, Ed., Bentham Science Publishers (<i>In press</i>).</p> <p>33. <b>Nassar*</b>, <b>N. N.</b>, Husein*, M. 2011. Maximizing the uptake of nickel oxide nanoparticles in AOT (w/o) microemulsions, in: <u>Recent Trends in Surface and Colloid Science</u>, P. K. Paul, Ed., Special Issue, World Scientific Publishing Co. Pvt. Ltd., Singapore (<i>In</i></p>

	<p>press).</p> <p>34. Husein*, M., <b>Nassar, N. N.</b> 2009. <i>Nanoparticle uptake by (w/o) microemulsions</i>, in: <i>Microemulsions: Properties and Applications</i>, M. Fanun, Ed., Surfactant Science Series, CRC Press, Taylor &amp; Francis Group LLC, Boca Raton, FL, USA. Chapter 17, vol (144), pp 465-479.</p>
<b>Educational Papers (Peer Reviewed)</b>	<p>35. <b>Nassar*</b>, N., Mehrotra, A. 2011. Design of a laboratory experiment on heat transfer in an agitated vessel, <i>Education for Chemical Engineers</i> (Trans. Inst. Chem. Engrs. Part D), 6, D, e83-e89.</p> <p>36. <b>Nassar*</b>, N., Kasumu, A.S., Mehrotra, A. 2012. Experiential learning of boiling heat transfer with an in-house-designed-built laboratory apparatus, <i>Education for Chemical Engineers</i>. (submitted)</p>
<b>Conference Proceedings (Peer Reviewed Papers)</b>	<p>37. J. Berezinski, F. López-Linares, <b>N.N. Nassar</b>, L. Carbognani Ortega and P. Pereira-Almao, Microwave-Assisted Procedure for Metal Extraction in Heavy Hydrocarbon Feedstocks and Emulsions. Prepr. Pap.-Am. Chem. Soc., Div. Energy Fuels <b>2012</b>, 57 (2), xxxx</p> <p>38. <b>Nassar*</b>, N., Husein, M. 2009. In-situ capturing of H<sub>2</sub>S<sub>(g)</sub> associated with SAGD operations, <i>EME, Banff, AB</i>, July 6–8, 2009, ACTA Press, Calgary, AB (Track 650-062).</p> <p>39. <b>Nassar*</b>, N., Al-Jabari, M., Husein, M. 2009. Investigation on asphaltene deposition onto different surfaces of ultradispersed catalysts, in: proceeding of the 8<sup>th</sup> World Congress of Chemical Engineering (WCCE8), Montreal, QC, Canada.</p> <p>40. <b>Nassar*</b>, N., Al-Jabari, M., Husein, M. 2008. Removal of asphaltenes from heavy oil by nickel nano and micro particle adsorbents, NANA, Crete, Greece, September 2008, ACTA Press, Calgary, AB (Track 615-808).</p> <p>41. Al-Jabari, M., <b>Nassar*</b>, N., Husein, M. 2007. Separation of asphaltenes from heavy oil model-solutions by adsorption on colloidal magnetite nanoparticles, in: proceeding of the International Congress of Chemistry &amp; Environment, <i>ICCE 2007</i>, Kuwait, Kuwait, November 2007 (CD-Proceedings).</p> <p>42. <b>Nassar</b>, N., Utracki, L., Kamal, M. 2005. Melt exfoliation of montmorillonite in polystyrene, Proceeding in Polymeric Nanocomposites 2005 conference, Industrial Materials Institute, National Research Council Canada, Boucherville, Quebec, Canada, September 28-30, 2005 (CD-Proceedings).</p>
<b>Articles In Technical/Professional Publications</b>	<p>43. <b>Guest Columnist: N.N. Nassar, 2012.</b> Nanotechnology could help in reducing the environmental footprints of Alberta oilsands industry. Alberta WaterSMART, March 2012</p> <p>44. <b>Nassar</b>, N. 2008. Decreasing environmental impacts: Environmental and energy applications of nanoparticles, <i>Eye on Ideas magazine</i>, University of Calgary, Global Issue, vol 2, no. 2, p.8.</p> <p>45. <b>Nassar</b>, N. 2007. Learning to lead: In conversation with Nashaat Nassar, <i>Schulich Engineer magazine</i>, University of Calgary, Leadership Issue, p.10.</p>
<b>Conference Presentations (Peer Reviewed Abstracts)</b>	<p>1. <b>N. Nassar</b>, A. Hassan, F. Lopez-Linares and P. Pereira-Almao, Project number A05: Hydrogen Production and Waste Processing, Carbon Management Canada 2<sup>nd</sup> Annual CMC Scientific Conference, Gatineau, Quebec, May 23-25, 2012.</p> <p>2. R. Hashemi, <b>N.N. Nassar</b>, and P. Pereira-Almao, Challenges</p>

- Facing Heavy Oil In-Situ Catalytic Upgrading and Recovery using Ultradispersed Nanoparticles inside Porous Media, SPE 2012 conference, October, Calgary, Alberta
3. A. Hassan, **N.N. Nassar**, and P. Pereira-Almao, *Nanoparticles for asphaltene adsorption and post adsorption catalysis*. 95<sup>th</sup> Canadian Chemistry Conference and Exhibition (CSC 2012), Calgary, AB, May 26 – 30, 2012.
  4. A. Hassan, **N.N. Nassar**, F. Lopez-Linares and P. Pereira-Almao, Asphaltenes Adsorption and Post Adsorption Catalysis over Mesoporous-macroporous Materials, Calorimetry and Thermal Effects in Catalysis (CTEC 2012), June 26 - 29, 2012- Lyon, France
  5. **N. Nassar**, A. Hassan, P. Pereira-Almao, Metal oxide nanocatalysts for enhanced catalytic cracking, oxidation, and steam gasification of waste hydrocarbons, 61<sup>st</sup> Canadian Chemical Engineering Conference, London, Ontario, Canada, October 23-26, 2011.
  6. A. Hassan, **N. Nassar**, P. Pereira-Almao, Novel Catalysts for Asphaltene Adsorption and Gasification, 61<sup>st</sup> Canadian Chemical Engineering Conference, London, Ontario, Canada, October 23-26, 2011.
  7. P. Pereira-Almao, **N. Nassar**, A. Hassan, F. Lopez-Linares, J. Perez-Zurita-Scott, Project number A05: CO<sub>2</sub> Abatement Technique, Carbon Management Canada Annual Conference, Calgary, Alberta, May 17, 2011.
  8. P. Pereira-Almao, A. Hassan, **N. Nassar**, F. Lopez-Linares, Project number A05: Hydrogen Production and Waste Processing, Carbon Management Canada Annual Conference, Calgary, Alberta, May 17, 2011.
  9. A. Hassan, **N. Nassar**, P. Pereira-Almao, Catalytic Effect of Nanoparticles for Asphaltenes Adsorption, Oxidation and Gasification, 60<sup>th</sup> Canadian Chemical Engineering Conference, Saskatoon, Saskatchewan, Canada, October 24-27, 2010.
  10. A. Hassan, **N. Nassar**, P. Pereira-Almao, Nanoparticles for asphaltenes adsorption and gasification, 93<sup>rd</sup> Canadian Chemistry Conference and Exhibition (CSC 2010), Toronto, ON, May 29 – June 2, 2010.
  11. **N. Nassar**, M. Al-Jabari and M. Husein, Removal of asphaltenes from heavy oil by nickel nano and micro particle adsorbents, NANA2008, Crete, Greece, September 2008.
  12. **N. Nassar** and M. Husein, Maximizing the Concentration of Colloidal Nanoparticles in Microemulsions and their Application as Absorbents, International Symposium on Recent Trends in Surface and Colloid Science ISSCS-07, Kolkata, India November 15-16, 2007.
  13. **N. Nassar**, M. Al-Jabari and M. Husein, Removal of asphaltenes from heavy oil by nickel nano and micro particle adsorbents, in: proceeding of International Association of Science and Technology Development (IASTED) Conference on Nanotechnology and Applications (NANA2008), Crete, Greece, September 2008.
  14. **N. Nassar** and M. Husein, Single-Microemulsions for the Preparation of High Surface Area Colloidal Nanocatalysts, 57<sup>th</sup> Canadian Chemical Engineering Conference, Edmonton, Alberta, Canada, October 28-31, 2007.
  15. **N. Nassar** and M. Husein, Stabilization of Copper Oxide

- Nanoparticles in (w/o) Microemulsions: Experimental and Modeling Results, Trends in Nanotechnology 7<sup>th</sup> conference, 2007 San Sebastian, Spain, September 3<sup>rd</sup>-7<sup>th</sup>, 2007.
16. **N. Nassar** and M. Husein, Reverse Micelle Synthesis of Metal Oxide Nanoparticles, The 4<sup>th</sup> Annual Schulich School of Engineering Graduate Student Research Conference 2007, University of Calgary, Calgary, AB, Canada, April 30- May 1, 2007.
  17. **N. Nassar** and M. Husein, Preparation of FeOOH Nanoparticles from its Solid Powder in Aerosol-OT w/o Microemulsions, 56<sup>th</sup> Canadian Chemical Engineering Conference, Sherbrooke, Quebec, Canada October 15-18, 2006.
  18. **N. Nassar**, A. El-Hamouz, H. Hilal, Z. Mardawi, Utilization of Olive Solid Waste (Jift) in Removing Chromium from Synthetic Wastewater, 56<sup>th</sup> Canadian Chemical Engineering Conference, Sherbrooke, Quebec, Canada October 15-18, 2006.
  19. **N. Nassar** and M. Husein, Solubility of FeOOH powder in AOT Reverse Micelles, The 3<sup>rd</sup> Annual Schulich School of Engineering Graduate Student Research Conference 2006, University of Calgary, Calgary, AB, Canada, May 1-2, 2006.
  20. **N. Nassar** and M. Husein, Preparation of Iron Oxide Nanoparticle Catalysts Starting from Iron Chloride Powder Using Microemulsions, 55<sup>th</sup> Canadian Chemical Engineering Conference, Toronto, Ontario, Canada October 16-19, 2005.
  21. **N. Nassar**, L. Utracki, M. Kamal, Melt Exfoliation of Montmorillonite in Polystyrene, Proceeding in Polymeric Nanocomposites 2005 conference, Industrial Materials Institute, National Research Council Canada, Boucherville, Quebec, Canada, September 28-30, 2005.
  22. **N. Nassar** and M. Husein, Preparation of Iron Oxide Nanoparticle from FeCl<sub>3</sub> Solid Powder Using Microemulsions, Trends in Nanotechnology 5<sup>th</sup> conference, 2005 Oviedo, Spain, August 28-September 2, 2005.
  23. **N. Nassar** and M. Husein, Preparation of Iron Oxide Nanoparticle Using Microemulsions, The 2<sup>nd</sup> Annual Engineering Graduate Student Research Conference 2005, University of Calgary, Calgary, AB, Canada, May 2-3, 2005.
  24. **N. Nassar**, L. Utracki, M. Kamal, Paper competition: Polystyrene Nanocomposites” 54<sup>th</sup> Canadian Chemical Engineering Conference, Calgary, Alberta, Canada, October 16-19, 2004.
  25. **N. Nassar**, M. Kamal, S. Tanoue, L.A. Utracki, A. Garcia-Rejon, J. Tatibouet, K.Cole, Melt Compounding of Polystyrene with Organoclay, The SPE Asian Plastics Technology Conference, Nagoya, Japan, November 12-14, 2003.
  26. **N. Nassar**, L. Utracki and M. *Kamal*, Melt Processing of Polystyrene/Clay Nanocomposites Using Various Torpedo Attachments in a Single-Screw Extruder, Polymeric Nanocomposites 2003 conference, Industrial Materials Institute, National Research Council Canada, Boucherville, Quebec, Canada, October 2003.
  27. **N. Nassar**, J. Calderon, L. Utracki M. Kamal, Melt Processing of Polystyrene Nanocomposites, Polymeric Nanocomposites 2003 conference, Industrial Materials Institute, National Research Council Canada, Boucherville, Quebec, Canada, October 2003.
  28. **N. Nassar** and M. Kamal, Effect of Shear Stress and Elongational Deformation on Nanocomposite Compounding, Polymeric

	<p>Nanocomposites Project Conference, McGill University, Montréal, Quebec, Canada, May 28, 2002</p> <p>29. <b>N. Nassar</b>, L. Utracki and M. Kamal, Mechanical Exfoliation of Monmorillonite in Molten Polystyrene, Polymeric Nanocomposites 2001 conference, Industrial Materials Institute, National Research Council Canada, Boucherville, Quebec, Canada, October 2001.</p>
<b>Non-refereed Research and Technical Reports</b>	<ol style="list-style-type: none"> <li>1. <b>N. Nassar</b>, "Nanoparticles, Preparation and Applications" Department of Chemical and Petroleum Engineering, University of Calgary, Calgary, AB, January 10, 2005. (50 pages).</li> <li>2. <b>N. Nassar</b>, "Microemulsions, Preparation and Applications" Department of Chemical and Petroleum Engineering, University of Calgary, Calgary, AB, September 8, 2004 (40 pages).</li> <li>3. <b>N. Nassar</b>, "Preparation of Iron Oxide Nanoparticles Using Microemulsions for Environmental and Energy Applications" Department of Chemical and Petroleum Engineering, University of Calgary, Calgary, AB, May 23, 2005 (42 pages).</li> <li>4. <b>N. Nassar</b>, "Heat Transfer Laboratory Manual" Chemical Engineering Department, An-Najah University, 2004 (93 pages).</li> <li>5. <b>N. Nassar</b>, "Fluid Mechanics Laboratory Manual" Chemical and Mechanical Engineering Departments, An-Najah University, 2004 (62 pages).</li> <li>6. <b>N. Nassar</b> and M. Shohadeh, "Reaction Engineering Laboratory Manual", Chemical Engineering Department, An-Najah University, 2004 (48 pages).</li> </ol>
<b>Guest speaking</b>	<ol style="list-style-type: none"> <li>1. Nanotechnology for In Situ Catalytic Upgrading of Athabasca Bitumen/Heavy Oil: Enhancement of Produced Liquid Quality and Reduction in CO<sub>2</sub> Emission and Coke Deposition, BIT's 2<sup>nd</sup> Annual International Symposium of Unconventional Oil &amp; Gas. Theme: Unlock the True Potential, Taiyuan, China, September 24-26, 2012.</li> <li>2. Utilization of (w/o) Microemulsions as Nanoreactors for In-Situ Synthesis of Nanoadsorbents/Nanocatalysts for In-situ Catalytic Heavy Oil Upgrading, BIT's 2<sup>nd</sup> Annual International Symposium of Unconventional Oil &amp; Gas. Theme: Unlock the True Potential, Taiyuan, China, September 24-26, 2012.</li> <li>3. Effluent Treatment Processes for Energy Industry, Energy and Environment Engineering Students' Association at the University of Calgary, April 3, 2012</li> <li>4. Nanotechnology for reducing the environmental footprint of Alberta oil sands industry, Department of Chemical and Petroleum Engineering, University of Calgary, Alberta, October 7, 2011.</li> <li>5. In house prepared nanoparticles for green oil sands industry, Jordan University of Science and Technology, Irbid, Jordan, May 13, 2010.</li> <li>6. Potential Applications of Nanotechnology for Textile Wastewater Treatment, Dafern Designs Inc., Calgary, AB, December 20, 2009.</li> <li>7. Nanoparticles for industrial wastewater treatment, Canadian Clean Water Systems Inc. Calgary, AB, September 19, 2009.</li> <li>8. Nanotechnology: Energy and Environmental Applications, Polymer Engineering (ENCH 539), Department of Chemical and Petroleum Engineering, University of Calgary, Calgary, Canada, April 1<sup>st</sup>, 2009</li> <li>9. Nanotechnology and the Environment, Polymer Engineering (ENCH 539), Department of Chemical and Petroleum Engineering, University of Calgary, Calgary, Canada, April 1<sup>st</sup>, 2008</li> <li>10. Preparation of Nanoparticles Using Microemulsion Techniques, In-Situ Upgrading and Heavy Oil Research Group, Calgary, Canada,</li> </ol>

	September 2004
<b>Research Projects Management</b>	<ul style="list-style-type: none"> <li>○ Established research record in the areas of nanotechnology and its applications for heavy oil upgrading, air pollution control, wastewater treatment systems, and polymer processing, with industrially oriented research experience.</li> <li>○ Generated a total of more than \$150K CDN in grants through several collaborative research projects over the last three years.</li> <li>○ Excellent proposal-writing skills. Received several training courses in this area.</li> <li>○ Developed strong collaborative relationships with many prominent researchers in several international universities, resulting in joint research projects.</li> <li>○ Led several research teams, planned and coordinated activities, ensured milestones and deadlines achievement, prepared and executed budgets, administered procurement procedures, ensured that proper procedures for reporting to donors and stakeholders were carefully followed.</li> <li>○ Received several training courses in project management, time organization, and performance under pressure, team work and leadership.</li> </ul>
<b>Experimental Skills</b>	<p><b>Water and wastewater characterizations:</b>  <i>Experienced in using a number of analytical instruments; including:</i>  Atomic Absorption (AA), Inductively Coupled Plasma (ICP), Ultra Violet Spectroscopy (UV), Total Organic Compound (TOC), Biological oxygen Demand (BOD), Chemical Oxygen Demand (COD), Total Suspended Solid (TSS), Total Dissolved Solid (TDS), Turbidity, etc.</p> <p><b>Air pollution characterizations:</b>  Expert in a wide range of characterization techniques; including: Gas Chromatography (GC), <b>YESAir</b>: For measuring the concentration of carbon dioxide (CO<sub>2</sub>) and carbon monoxide (CO) as well as temperature and humidity, <b>MiniRae PID</b>: For measuring the concentration of volatile organic compounds (VOCs), <b>RCS Microbial Pump</b>: For collecting Microbiological Pollutants, <b>TSI DustTrack</b>: For measuring the concentration of dust, smoke and Mist, <b>Sper Lightmetre</b>: For measuring the light levels and intensity, <b>Bruel &amp; Kjaer Sound Level Metre</b>: For measuring noise levels</p> <p><b>Polymer, materials and heavy oil characterizations:</b>  Expert in several characterization techniques; including:  Transmission Electron Microscopy (TEM), Scanning Electron Microscopy (SEM), X-Ray Diffractometer, SMALL Angle X-ray Scattering (SAXS), Differential Scanning Calorimetry (DSC), Thermo Gravimetric Analyzer (TGA), Fourier Transform Infrared Spectroscopy (FTIR), Capillary Rheometer, Rheometric Scientific Rotational Rheometer (Advanced Rheometric Expansion System), Karl Fisher (KF), Ultra Violet Spectroscopy (UV), Dynamic Light Scattering (DLS), Surface Area and Porosity Measurements (e.g., BET) and Stopped Flow (SF).</p>
<b>SUPERVISED STUDENTS</b>	
	<ul style="list-style-type: none"> <li>• Mr. German Luna, B.Sc., University of Calgary. Project area: Modeling metal oxide nanoparticle transport in porous media (2011).</li> <li>• Mr. Nafis Abdallah, B.Sc., University of Calgary. Project area: Kinetics of acid red 27 adsorption onto alumina particles (2011).</li> </ul>

	<ul style="list-style-type: none"> <li>• Ms. Anna Ringsred, B.Sc., University of Calgary. Project area: Adsorptive and oxidation removal of methylene blue by goethite nanoparticles (2011).</li> <li>• Mr. Aashish Rangari, B.Sc, University of Calgary. Project area: Fast adsorptive removal of heavy metals from wastewater by magnetic nanoparticles (2009).</li> <li>• Mr. Peter Liang, B.Sc, University of Calgary. Project area: Metal oxide solubilization in (w/o) microemulsions (2008).</li> <li>• Ms. Keran Masoud, B.Sc., University of Calgary. Project area: Rapid adsorption of Pb(II) onto Fe<sub>3</sub>O<sub>4</sub> nanoparticles (2007).</li> </ul>
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#### LOCAL & INTERNATIONAL SERVICE AND CONSULTANCY

<p><b>Journal reviewer</b></p>	<ol style="list-style-type: none"> <li>1. Reviewer, <b>Journal of Alloys and Compounds</b> (May 2012-present)</li> <li>2. Reviewer, <b>Journal of Environmental Chemistry and Ecotoxicology</b>, JECE (May 2012-present).</li> <li>3. Reviewer, <b>International Journal of Chemical Reactor Engineering</b> (April 2012-present)</li> <li>4. Reviewer, <b>Journal of Petroleum Technology and Alternative Fuels</b> (March 2012-present)</li> <li>5. Reviewer, <b>Nanoscale</b> (November 2011-present)</li> <li>6. Reviewer, <b>Industrial &amp; Engineering Chemistry Research</b> (November 2011-present)</li> <li>7. Reviewer, <b>Science of the Total Environment</b> (November 2011-present)</li> <li>8. Reviewer, <b>ACS Applied Materials &amp; Interfaces</b> (September 2011-present)</li> <li>9. Reviewer, <b>Energy &amp; Fuels</b> (April 2011-present)</li> <li>10. Reviewer, <b>Canadian Journal of Chemical Engineering, CJCE</b> (January 2011-present)</li> <li>11. Reviewer, <b>Korean Journal of Chemical Engineering, KJChE</b> (January 2011-present)</li> <li>12. Reviewer, <b>Journal of Hazardous Materials, HAZMAT</b> (December 2010-present)</li> <li>13. Reviewer, <b>Separation Science and Technology, SS&amp;T</b> (December 2010-present)</li> <li>14. Reviewer, <b>CLEAN-Soil, Air, Water</b> (October 2010-present)</li> <li>15. Reviewer, <b>Journal of Colloid and Interface Science, JCIS</b> (November 2008-present)</li> <li>16. Reviewer, <b>Current Nanoscience, CNano</b> (October 2008-present)</li> <li>17. Reviewer, <b>Materials Chemistry and Physics, MCP</b> (August 2008-present)</li> <li>18. Reviewer, <b>Nanotechnology, NT</b> (November 2008-present)</li> <li>19. Reviewer, <b>Fuel Processing Technology, FPT</b> (March 2010-present)</li> <li>20. Reviewer, <b>Colloids and Surfaces A: Physicochemical and Engineering Aspects, COLSUA</b> (June 2010-present)</li> <li>21. Reviewer, <b>Process Safety and Environmental Protection, PSEP</b> (September 2010-present)</li> <li>22. Reviewer, <b>Journal of the Taiwan Institute of Chemical Engineers, JTICE</b> (January 2010-present)</li> <li>23. Reviewer, International Association of Science and Technology Development (IASTED) Conference on <b>Environmental Management and Engineering 2009, EME 09</b></li> </ol> <p>1. <b>Member</b> of the organizing committee for the Air &amp; Waste Management</p>
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### **Conference Organization**

- Associations 103<sup>rd</sup> Annual Conference, Calgary, AB June 22-25, 2010.
2. **Chaired** the Session of Air Quality, Clean Energy, Conservation, and Recycling at the IASTED International Conference on Environmental Management and Engineering, July 6-8, Banff, AB.
3. **Chairman** of the 5<sup>th</sup> Annual Schulich School of Engineering Graduate Student Research Conference 2008, University of Calgary, Calgary, AB, Canada, May 5<sup>th</sup>-May 6<sup>th</sup>, 2008.
4. **Chairman** of the 4<sup>th</sup> Annual Schulich School of Engineering Graduate Student Research Conference 2007, University of Calgary, Calgary, AB, Canada, April 30<sup>th</sup>-May 1<sup>st</sup>, 2007.
5. **Chairman** of the 3<sup>rd</sup> Annual Schulich School of Engineering Graduate Student Research Conference 2006, University of Calgary, Calgary, AB, Canada, May1-2, 2006.
6. **Member** of the organizing committee for the International Workshop on System on Chips Conference (IWOSC 2005), Banff, AB, Canada, July 19-22, 2005. This conference was organized by the department of electrical and computer engineering at University of Calgary.
7. **Member** of the organizing committee for the International Conference on MEMS, NANO, and Smart Systems (ICMENS 2005), Banff, AB, Canada, July 24-27, 2005. This conference was organized by the department of electrical and computer engineering at University of Calgary.
8. **Member** of the Organizing committee for the 2<sup>nd</sup> Annual Engineering Graduate Students Research Conference 2005, University of Calgary, Calgary, AB, Canada, May1-2, 2005.

### **University of Calgary Services**

1. **Coordinator**, Sustainability ON, University of Calgary, Calgary, AB, Canada (2010-present)
2. Helped in the ISEEE/AICISE booth during: Global Petroleum Show Conference, Calgary, AB (June 2008)
3. **Editor for the Eye on Ideas magazine**: interview faculties, postdoctoral and graduate students about their ideas of research, edit their articles, etc. (January 2006-present)
4. **U of C Campus fair**: participated in the representing committee of the department of chemical and petroleum engineering in the annual U of C campus fair for the years 2005 to 2009.
5. **Grad Rep**: represented graduate students in the steering committee of the Institute for Sustainable Energy, Environment and Economy (ISEEE) building. (October 2006)
6. **Coordinator**, equipment procurement committees for Fluid Mechanics and Heat Transfer Laboratories, Hisham Hijjawi College of Technology, An-Najah National University, Palestine, 2004.

### **Faculty Services**

1. **Chairman** of the 3<sup>rd</sup>, the 4<sup>th</sup>, and the 5<sup>th</sup> Annual Schulich School of Engineering Graduate Student Research Conference for the years 2006, 2007 and 2008, University of Calgary, Calgary, AB, Canada. My duties included: supervision, organization of steering committee meeting, assigning responsibilities for the organizing committee members, contacting industry for fundraising, sending calls for abstracts, editing the book of abstracts, constructing the conference website, etc.

<p><b>Department Services</b></p>	<ol style="list-style-type: none"> <li>1. <b>Secretariat</b> of the Chemical and Petroleum Engineering Graduate Students' Association (CPEG) of the University of Calgary for two occasions, 2004-2005 and 2005-2006. Duties included: organization of executive and general meetings, fields trips, contacting industry for fundraising, preparing agenda and writing minutes for executive meeting, etc.</li> <li>2. <b>Member</b>, Curriculum Committee, Department of Chemical Engineering, An-Najah University, Palestine (2003-Present)</li> </ol>
<p><b>In the news</b></p>	<ol style="list-style-type: none"> <li>1. Nanoparticles as nanoscrubbers, UToday Magazine, University of Calgary, April 19, 2012</li> <li>2. Interview with the Eye on Ideas magazine for Graduate Studies office, Global Issue, vol 2, issue 2, Winter 2008.</li> <li>3. Interview with the Schulich Engineer magazine, Leadership Issue, Fall 2007.</li> <li>4. Interview with the Schulich School of Engineering communication office about leading the graduate student research conference, April 2007.</li> <li>5. Interview with NSERC-Prairies office rep. about leading the graduate student research conference, May 2006.</li> </ol>
<p><b>Extra-Curricular</b></p>	<ul style="list-style-type: none"> <li>▪ <b>Write</b> approximately twenty (<b>20</b>) recommendation letters per year.</li> <li>▪ <b>Judge</b> in the City Youth Science Fair, Calgary, Alberta, Canada (March 4, 2008, April 2009)</li> <li>▪ <b>Help</b> newly accepted students at Canadian Universities to get acquainted with life at the university and in Canada as a member of the BUDDY program.</li> <li>▪ <b>Tutor</b> undergraduate and graduate students in Engineering</li> <li>▪ <b>President</b> of the chemical engineering club at An-Najah National University, Palestine (1996-1999).</li> </ul>

**PROFESSIONAL DEVELOPMENT COURSES/WORKSHOPS**

	<ol style="list-style-type: none"> <li>1. Training course on <b>VMG Simulation</b>, Virtual Materials Group Inc., Alberta Research Council, March 9, 2011.</li> <li>2. Training course on <b>COMSOL Multiphysics</b>, Toronto, ON. A 2-day intensive training program (January 27-28, 2011).</li> <li>3. Workshop on <b>Industrial Catalysts &amp; Catalytic Reactors</b>, University of Calgary, Calgary, Alberta (August 28-30, 2009). A 2-day training program offered by Prof. Jaques Bousquet.</li> <li>4. Getting Started with <b>Breeze workshop</b>, hosted by the Teaching and Learning Centre, The University of Calgary (September 16, 2008).</li> <li>5. 2008 Schulich School of Engineering Teaching Development Workshops, <b>Faculty Workshop II: The Professor's Art</b>. University of Calgary, Alberta, Canada (July 31, 2008).</li> <li>6. Training course on <b>H<sub>2</sub>S Alive® course</b>, ENFORM H<sub>2</sub>S Alive®, Calgary Training Centre, Calgary, Alberta Canada (July 10<sup>th</sup>, 2008). A 1-day course, content includes H<sub>2</sub>S properties, the initial response strategy, respiratory protective equipment, detection of H<sub>2</sub>S, rescue techniques and rescue breathing. This is the most widely accepted course and is mandatory when working in industries including pulp and paper, waste water treatment, geophysical/seismic and the petroleum industry just to mention a few.</li> <li>7. <b>Faculty Teaching Certificate</b>, Teaching and Learning Center,</li> </ol>
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	<p>University of Calgary, Canada (November, 2007).</p> <p>8. <b>Instructional Skills Workshop</b>, Teaching and Learning Center, University of Calgary, Canada (September-October, 2006).</p> <p>9. University Workshop on using <b>Blackboard as a course web environment</b> (May 2006).</p> <p>10. Workshop on <b>Advanced Process Modeling in gPROMS</b>, CSCHE 2005, Toronto, Canada (October, 2005).</p> <p>11. Training Course on <b>Advanced Teaching Assistance</b>, University of Calgary, Calgary, Canada (August, 2005)</p> <p>12. Workshop on <b>WinProp</b>, Computer Modeling Group Ltd. CSCHE 2004, Calgary, Canada (October, 2004)</p> <p>13. Workshop on <b>F.A.S.T. VirtuWell™</b> from Fekete Associates Inc., software which is specialized for oil and gas production analyses. CSCHE 2004, Calgary, Canada (October, 2004)</p> <p>14. Workshop on <b>Academic Writing</b>, University of Calgary, Calgary, Canada (September, 2004)</p> <p>15. Training Course on <b>Workplace Hazardous Materials Information System (WHMIS)</b>, Calgary, Canada (September 2004)</p> <p>16. Training Course on <b>Good Manufacturing Practice (GMP) in pharmaceutical industries</b>. Continuing Education Centre An-Najah National University, Nablus, Palestine</p>
<b>PROFESSIONAL AFFILIATIONS</b>	
	<ul style="list-style-type: none"> <li>• Professional Member, The Association of Professional Engineers and Geoscientists of Alberta (APEGA).</li> <li>• Member of the Canadian Society for Chemical Engineering (CSCHE).</li> <li>• Member of the American Institute of Chemical Engineers (AIChE).</li> <li>• Member of Polymer Engineering Society (PES).</li> <li>• Member of Petroleum Engineering Society (PES)</li> <li>• Member of Center for Environmental Engineering Research and Education (CEERE)</li> <li>• Member of the Alberta Ingenuity Center for In-Situ Energy (AICISE)</li> </ul>
<b>LANGUAGES</b>	
	<p>Arabic, English, and Hebrew; Fluent.          French, Spanish, Persian, and Greek; very poor</p>