Preliminary Program

An ACPA Short Course in

Water and Wastewater Treatment

Friday, March 2, 2018
Hotel Blackfoot, Calgary, Alberta

8:00 - 8:30 Registration and Continental Breakfast

8:30 - 10:00 Basic Concepts in Water and Wastewater Treatment

1. Water resources and applications
2. Water chemistry: inorganic and organic contents
3. Water quality and evaluation methods
   - turbidity, color, hardness, alkalinity, pH
   - solids (TS, TVS, TSS, VSS, TDS, VDS, FDS)
   - organic aggregate measures (BOD, COD, TOD)

10:00 - 10:30 Coffee Break

10:30 - 12:00 Water Treatment Terms

1. Colloids, coagulation, flocculation, ion exchange, adsorption, chlorination, membranes
2. Sludge, activated sludge, aerobic digestion, anaerobic digestion
3. Primary, secondary and tertiary treatment methods

12:00 - 13:00 Lunch

13:00 - 14:30 Water and Wastewater Issues in the Oil and Gas Industry (Part I)

1. Flow-back, produced water and tailings characteristics
2. Wastewater treatment methods

14:30 - 15:00 Coffee Break

15:00 - 16:30 Water and Wastewater Issues in the Oil and Gas Industry (Part II)

3. Wastewater treatment methods with a focus on SAGD operation

Dr. Shiva Zohreh Vand, P.Chem.

As a professional chemist and an educator, Dr. Shiva Zohreh Vand developed her unique skill set by working in academia as well as industry and has experience in performing experimental analysis and numerical simulations. She held different positions including assistant professor at the University of Manitoba, post-doctoral fellow at the University of Toronto, and Ryerson University, research associate and instructor at the University of Calgary, research chemist at Sanjel and project analyst at CETAC-West. Her main research interests include polymeric material synthesis and development with a focus on fracturing fluids, cyclodextrin based polymeric filter materials for pollutant removal from environment, chemo-sensors and water based coatings.

Shiva holds a doctorate degree in Chemical Engineering from Delft University of Technology, a Master's degree in Textile Engineering (Tehran Polytechnic) and a Master's degree in Petroleum Engineering (University of Calgary, 2016). She carried out a numerical study to evaluate the influence of well pair configuration on performance of Steam Assisted Gravity Drainage (SAGD) in thin oil sand reservoirs. Further, she wrote two papers on treatment of produced and flow-back water in the oil and gas industry and Enhanced Oil Recovery (EOR) in naturally fractured reservoirs.

As an educator she has combined five years of teaching experience at the University of Calgary and the University of Manitoba. Shiva believes in continuous learning, exchange of knowledge and giving back to her profession. At the moment, she serves as technical seminar committee member with the Association of the Chemical Profession of Alberta (ACPA) to promote educational opportunities for professionals working in the chemical industry.