TUPREP Advisory Board Hybrid Meeting
Draft Technical Presentation Program
Thursday, May 16, 2024

In-Person Meeting at Room 2005, Keplinger Hall, 440 South Gary Place
College of Engineering and Natural Sciences, University of Tulsa

7:30 - 8:00 Continental Breakfast Served in KEP Room 2005.

8:00 Introduction, TUPREP Overview, Mustafa Onur, Director.

8:15 Life-Cycle Reservoir Production Optimization Using Heuristic Schemes Implemented in Commercial (High Fidelity) Numerical Simulators for Handling Nonlinear State Constraints. Presenter: Ömer L. Toktaş, Tulsa University.

8:40 Nonlinearly Constrained Well Placement Optimization for Geologic CO_2 Storage Using Iterative Latin Hypercube Sampling. Presenter: Imaobong Tom, Tulsa University

9:05 Nonlinearly Constrained Life-Cycle Production Optimization Under Geological Uncertainty: A Realistic Application. Presenter: Ömer L. Toktaş, Tulsa University.

9:30 Embed-to-control-based Deep-learning Surrogate for Robust Nonlinearly Constrained Production Optimization. Presenter: Quang M. Nguyen, Tulsa University.

9:55 Streamlining Robust Constrained Production Optimization: An Integrated Framework Utilizing Automatically Differentiated Gradient from Deep-Learning-Based Reservoir Surrogates. Presenter: Ahmed Adeyemi, Tulsa University.

10:30 Break

10:45 Deep Reinforcement Learning Methodology for Closed-Loop Reservoir Management - Approach and Preliminary Results. Presenter: Ahmed Adeyemi, Tulsa University, Tulsa University.

11:10 Embed-to-control-based Deep-learning Surrogate for Production Data Assimilation - Approach and Preliminary Results. Presenter: Usman Abdulkareem, Tulsa University.

11:35 A Mass-conservative INSIM-FT Model. Presenter: Malu Grave, PUC & Petrobras.

12:00 Lunch - Served in KEP Room 2005

13:00 INSIM-3P: An Interwell Simulator for Three Phase Flow. Presenter: Ying Li, Tulsa University.

13:25 Rapid deployment of TUPREP algorithms in SLB Delfi Platform. Presenter: Raj Banerjee and Aykut Atadeger, SLB.

13:50 An Accelerated Computational Platform for Optimal Field Developments with Reduced Footprint. <u>Presenter:</u> F. Omer Alpak, Shell International Exploration & Production Inc.

14:15 Unlocking the Potential of Huff-n-Puff Gas Injection in Unconventional Reservoirs. <u>Presenter:</u> Caner Karacer, NITEC, LLC.

14:40 Production Optimization of CO_2 Huff-and-Puff Process in Unconventional Oil Reservoirs with Effects of Gas Relative Permeability Hysteresis, Geomechanics, and Capillary Pressure. <u>Presenter:</u> Sardar Asadov, Tulsa University.

15:05 A Producer-Based Capacitance-Resistance Aquifer Model (CRMPAQ) to Characterize Oil Reservoirs With Natural Influx: A Realistic Application. <u>Presenter:</u> Berke Koroglu, Tulsa University.

15:30 Prediction and History Matching of Observed Production Rate and Bottomhole Pressure Data Sets from in Situ Cross-linked Polymer Gel Conformance Treatments Using Machine Learning Methods. <u>Presenter:</u> Yuhao Chen, Tulsa University.

15:55 INSIM-BHP Extension: Assessment CO_2 Storage in Aquifers - Approach and Preliminary Results. <u>Presenter:</u> Ying Li, Tulsa University.

16:30 Discussion

17:00 Adjourn