Modeling Design Optimization Low Salinity Waterflooding

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Webinar: Supply Chain Network OptimizationPutting DOE to Good Use for Developing Active Pharmaceutical Ingredients (API)s Zero cost modelling of space frame structures Low Poly Modeling: Style Through Economy Lecture 10 - Introduction to surrogate modeling

THREAT MODELING IN 2021 with Adam ShostackModeling and Simulation of an Electric Vehicle with MATLAB/Simulink Design Optimization 20 Smart DIY Hidden Storage Ideas that Keep Clutter in Check Modeling Design Optimization Low Salinity
As decarbonization initiatives gain momentum, construction players can benefit from this growing trend--as a strategic opportunity and collaboration with other stakeholders in the ecosystem.

Call for action: Seizing the decarbonization opportunity in construction
Communities across the country demonstrate the advantages of modular construction, resilient materials, and energy-efficient building systems—both for the residents and for the bottom line.

5 Innovative Multifamily Projects Showcase the Benefits of Building Better
ABB has signed a cooperation agreement with Sweden-based energy storage company SaltX Technology (saltxtechnology.com) to enable the development of a stable and scalable control system for EnerStore, ...

ABB’s Automation and Control Systems to Strengthen Technical Platform for Salt-based Energy Storage Company
While they may be expensive, these models make it quick and easy to create ice cream with ... which are generally the least expensive but require more work—you often have to add rock salt and ice, and ...

12 Of The Best Ice Cream Makers For Delicious Frozen Treats At Home
AnalogX offers low power multi ... software for photonic design and waveguide creation as well as the LightSuite Photonic Compiler. JEDEC established JEP181, a neutral file, XML-based standard aimed ...

Week In Review: Design, Low Power
Cookbook launch events coming up in Napa this summer: 5 p.m. July 29: Launch party at Southside Cafe's Century location at 135 Gasser Drive, Suite B, in Napa. The restaurant will cook their ...

Napa Valley food writer creates cookbook to help restaurant workers
Artificial intelligence is widely discussed in CIO conversations down to IT resourcing meetings in companies today. There is a range of topics that enterprises are involved in from research to novel ...

Learn About Machine Learning Through The Lens Of A Hedge Fund
Breeze Airways’ inaugural flight from Richmond International Airport hadn’t departed yet on Thursday morning, but the co-founder of the new low-cost airline is already talking about wanting to expand ...

WATCH NOW: Breeze Airways takes off from Richmond; co-founder expects to add more destinations
Raytheon Technologies Research Center and Argonne National Laboratory will use HPC to develop a physics-informed machine learning technique to desensitize film cooling effectiveness to manufacturing ...

13 Projects to Receive $3.7 Million for High Performance Computing Research at U.S. National Laboratories
(Nasdaq: CLSK) (the “Company” or “CleanSpark”), a diversified software, services, and bitcoin mining company, today announced the operating results of a microgrid project recently commissioned in San ...

CleanSpark Updates Performance of Newly-Commissioned Southern California Microgrid
This study builds on earlier work showing that an electrolyte containing a lithium salt in an organic solvent with a sacrificial ... Calculated nitrogenase values are also presented in (15). Singh et ...

Is lithium the key for nitrogen electroreduction?
Let's take a closer look at the upcoming electrified models from Dodge, Chrysler and Jeep, previewed during the Stellantis EV Day.

Stellantis Confirms 8 New STLA Platform Electric Models By 2026
What’s the difference between a transmitter and a sensor? Nine different types of sensor transmitters. How does each type of transmitter work? What are the components of each transmitter type?

9 Different Types of Sensor Transmitters
It also has very low solubility in water, so it's comparatively safe even if it falls into the sea. The Seaborg molten salt reactor design is incredibly compact, and features multiple passive ...

Mass-produced floating nuclear reactors use super-safe molten salt fuel
When purchasing a kitchen scale, you’ll find both newer digital models and mechanical ... a lot of perks for its low price point, including a lightweight and stylish design, multiple units ...

Digital vs. mechanical kitchen scale — which should I buy?
The popular carryall became a fixture of countless mid-aughts paparazzi photos, hanging from the spindly forearms of starlets who wore low ... the design of all collections, models products ...

The Gospel of Rebecca Minkoff
Automotive component supplier DENSO selected Siemens’ Simcenter portfolio of simulation and test applications for model-based development ... an FPGA EDA tool suite based on ML optimization algorithms ...

The low salinity water injection technique (LSWI) has become one of the important research topics in the oil industry because of its possible advantages for improving oil recovery. Several mechanisms describing the LSWI process have been suggested in the literature; however, there is no consensus on a single main mechanism for the low salinity effect on oil recovery. As a result of the latter, there are few models for LSWI and especially for carbonates due to their heterogeneity and complexity. In this research, we proposed a systematic approach for modeling the LSWI effect on oil recovery from carbonates by proposing six different methods for history matching and three different LSWI models for the UTCHEM simulator, empirical, fundamental, and mechanistic LSWI models. The empirical LSWI model uses contact angle measurements and injected water salinity. The fundamental LSWI model captures the effect of LSWI through the trapping number. In the mechanistic LSWI model, we include the effect of different geochemical reactions through Gibbs free energy. Moreover, field-scale predictions of LSWI were performed and followed by a sensitivity analysis for the most influential design parameters using design of experiment (DoE). The LSWI technique was also optimized using the response surface methodology (RSM) where a response surface was built. Also, we moved a step further by investigating the combined effect of injecting low salinity water and carbon dioxide on oil recovery from carbonates through modeling of the process and numerical simulations using the UTCOMP simulator. The analysis showed that CO2 is the main controller of the residual oil saturation whereas the low salinity water boosts the oil production rate by increasing the oil relative permeability through wettability alteration towards a more water-wet state. In addition, geochemical modeling of LSWI only and the combined effect of LSWI and CO2 were performed using both UTCHEM and PHREEQC upon which the geochemical model in UTCHEM was modified and validated against PHREEQC. Based on the geochemical interpretation of the LSWI technique, we believe that wettability alteration is the main contributor to the LSWI effect on oil recovery from carbonates by anhydrite dissolution and surface charge change through pH exceeding the point of zero charge.

Low Salinity and Engineered Water Injection for Sandstones and Carbonate Reservoirs provides a first of its kind review of the low salinity and engineered water injection (LSWI/EWI) techniques for today’s more complex enhanced oil recovery methods. Reservoir engineers today are challenged in the design and physical mechanisms behind low salinity injection projects, and to date, the research is currently only located in numerous journal locations. This reference helps readers overcome these challenging issues with explanations on models, experiments, mechanism analysis, and field applications involved in low salinity and engineered water. Covering significant laboratory, numerical, and field studies, lessons learned are also highlighted along with key areas for future research in this fast-growing area of the oil and gas industry. After an introduction to its techniques, the initial chapters review the main experimental findings and explore the mechanisms behind the impact of LSWI/EWI on oil recovery. The book then moves on to the critical area of modeling and simulation, discusses the geochemistry of LSWI/EWI processes, and applications of LSWI/EWI techniques in the field, including the authors’ own recommendations based on their extensive experience. It is an essential reference for professional reservoir and field engineers, researchers and students working on LSWI/EWI and seeking to apply these methods for increased oil recovery. Teaches users how to understand the various mechanisms contributing to incremental oil recovery using low salinity and engineering water injection (LSWI/EWI) in sandstones and carbonates Balances guidance between designing laboratory experiments, to applying the LSWI/EWI techniques at both pilot-scale and full-field-scale for real-world operations Presents state-of-the-art approaches to simulation and modeling of LSWI/EWI

This book contains state-of-the-art contributions in the field of evolutionary and deterministic methods for design, optimization and control in engineering and sciences. Specialists have written each of the 34 chapters as extended versions of selected papers presented at the International Conference on Evolutionary and Deterministic Methods for Design, Optimization and Control with Applications to Industrial and Societal Problems (EUROGEN 2013). The conference was one of the Thematic Conferences of the European Community on Computational Methods in Applied Sciences (ECCOMAS). Topics treated in the various chapters are classified in the following sections: theoretical and numerical methods and tools for optimization (theoretical methods and tools; numerical methods and tools) and engineering design and societal applications (turbo machinery; structures, materials and civil engineering; aeronautics and astronautics; societal applications; electrical and electronics applications), focused particularly on intelligent systems for multidisciplinary design optimization (mdo) problems based on multi-hybridized software, adjoint-based and one-shot methods, uncertainty quantification and optimization, multidisciplinary design optimization, applications of game theory to industrial optimization problems, applications in structural and civil engineering optimum design and surrogate models based optimization methods in aerodynamic design.

Salinity gradient energy, also known as blue energy and osmotic energy, is the energy obtainable from the difference in salt concentration between two feed solutions, typically sea water and river water. It is a large-scale renewable resource that can be harvested and converted to electricity. Efficient extraction of this energy is not straightforward, however. Sustainable Energy from Salinity Gradients provides a comprehensive review of resources, technologies and applications in this area of fast-growing interest. Key technologies covered include pressure retarded osmosis, reverse electrodialysis and accumulator mixing. Environmental and economic aspects are also considered, together with the possible synergies between desalination and salinity gradient energy technologies. Sustainable Energy from Salinity Gradients is an essential text for R&D professionals in the energy & water industry interested in salinity gradient power and researchers in academia from post-graduate level upwards. For more than ten years the Editors have been sharing substantial research activities in the fields of renewable energy and desalination, successfully participating to a number of European Union research projects and contributing to the relevant scientific literature with more than 100 papers and 2 books on Desalination technologies and their coupling with Renewable Energy. They are intensely working in the field of Salinity Gradient Power, carrying out research with specific focus o.n open-loop and closed-loop reverse electrodialysis and pressure retarded osmosis. Covers applications of pressure retarded osmosis, reverse electrodialysis, and capacitive mixing for salinity gradient power in one convenient volume Presents the environmental aspects and economics of salinity gradient energy Explores possible synergies between desalination and salinity gradient energy