J Pet Environ Biotechnol 2016, 7:4(Suppl)
http://dx.doi.org/10.4172/2157-7463.C1.020

A method for log interpretation based on modified fuzzy neural network

Xiao-hui Zeng and **Ya-juan Xue**
Chengdu University of Information and Technology, China

With the development of oil exploration, there is more and more ambiguity in the conventional logging interpretation. Although complex reservoirs and oil content identification can be analyzed and predicted by means of traditional neural network, there are some defects in information amalgamation especially when resolving different nonlinear problems. So we design a modified self-organizing neural network algorithm for qualitative attributes reduction integrated with rough set. Firstly log data with some qualitative attributes are analyzed in an information system from a view of fuzzy set, and then the key attributes from the interacted attributes with oil-bearing formation are extracted. Secondly unscented particle filtering(UPF) are used in estimating the parameters of the self-organizing fuzzy neural network, finally the experiments demonstrate that our algorithm can solve the predicting problems of nonlinear system with constraints, and extracts the if-then fuzzy rules in oil field with the less attributes and higher accuracy. The approach also shows rapid computing speed and strong anti-disturbance capacity. It will be verified to be suitable for lithology recognition and oil log interpretation in actual environments.

huizi003@126.com

Oxidative desulfurization of fuel oils over Fe promoted Co-Mo/Al_2O_3 and Ni-Mo/Al_2O_3 supported catalysts using hydrogen peroxide and formic acid as oxidants

Muhammad Yaseen
University of Peshawar, Pakistan

This work reports the promotion effect of Fe to Co or Ni based Mo/Al_2O_3 catalyst in the oxidative desulfurization (ODS) of Dibenzothiophene (DBT) as model fuel oil H_2O_2 and formic acid as oxidants. H_2O_2 exhibited higher ODS activity than formic acid over all catalyst systems. The influence of operating parameters i.e., reaction time, catalyst dose, reaction temperature and pH on oxidation process was investigated. Results reveal that maximum DBT conversion (96 %) was achieved at 60 °C and 150 min reaction time. Fe tremendously enhanced the ODS activity of Co or Ni based Mo/Al_2O_3 catalyts following the activity order: Fe–Ni–Mo/Al_2O_3 > Fe–Co–Mo/Al_2O_3 > Ni–Mo/Al_2O_3 > Co–Mo/Al_2O_3. Surface morphology and textural characterization of fresh and spent catalysts were achieved using Scanning electron microscopy (SEM), X-ray diffractometery (XRD), Energy dispersive X-Ray (EDX) analysis and BET Surface area analysis. The present approach can be effectively applied on industrial level for ODS of fuel oil crediting to its simple mechanization, low process cost, safety and application of mild operating condition.

myyousafzai@gmail.com
myyousafzai@upesh.edu.pk