Abstract for 6th International Nano World Conference (Dec 2020)

Authors: Sibo Lin1, Yagnaseni Ghosh1, Brian Hanna1, Timothy Kucharski1, Mohamed Elanany2, Motaz M. Khawaji2, Wei Xu2

Affiliation: 1Aramco Americas, Advanced Materials Team, Cambridge, MA  
 2Saudi Aramco, Chemicals Research and Development, Dhahran, Saudi Arabia

“Molecular design strategies for selective ethylene oligomerization catalysis”

Linear alpha olefin (LAO) demand as a polyethylene comonomer or fine chemicals intermediate is projected to surpass current production capabilities. Ethylene oligomerization to LAOS conventionally yields a Schulz−Flory distribution of products, such that less valuable products (1-butene and C12+ LAOs) are made in significant quantities. Herein, we present molecular catalyst design strategies toward oligomerization processes that preferentially or selectively yield the most valuable LAOs; examples of catalysts derived from these strategies are tested and compared to the state-of-the-art catalysts.