**Curriculum-Vitae**

**Name:** **Mohan Singh RANA**

**Current Address:** Dr. Mohan Singh (RANA), Research Scientist

A picture containing text, person, sky, indoor

Description automatically generatedPetroleum Research Center, Ahmadi,

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**Languages known** Hindi, English, Spanish and basic in Arabic, French

**Website:** <https://scholar.google.com/citations?user=tNhz85MAAAAJ&hl=en>

**Education:**

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| **Degree/Position** | **Board/University** | **Year** | **Subject** |
| B. Sc. | H.N.B. Garhwal University, India | 1990 | Chemistry, Botany |
| M. Sc. | 1992 | Organic Chemistry |
| M. Sc. | 1993 | Inorganic Chemistry |
| Project Associate | Indian Institute of Petroleum (IIP), India | 1994 - 2000  Heterogeneous Catalysis | |
| Ph. D. | H.N.B. Garhwal University, **India**  (Research Center: I.I.P.) | 1995-2000  Hydroprocessing Catalysis \* | |
| \***PhD Thesis:** “Studies on TiO2 and ZrO2 based mixed oxide hydroprocessing catalysts”.  (Supervisors: Dr. T.S.R. Prasada Rao, former director IIP, CSIR) | | | |
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**Synopsis:** Dr. Mohan S. RANA is a Senior Research Scientist at PRC-KISR since Nov., 2008. He received his PhD in heterogeneous catalysis from the Indian Institute of Petroleum (IIP), CSIR, India in 2000. He was than working for two years as visiting scientist at the University of Caen, CNRS, France, and later 6 years as a research scientist in Instituto Mexicano del Petroleo (IMP), Mexico. His research focuses on the development of catalyst for a different fraction of petroleum and their characterization. Dr. Mohan has about 23 years of work experience in areas associated with catalysis and petroleum refining processes. He authored or co-authored 115 refereed Journal articles, 9 book chapters, 95 conferences and has been awarded 8 US patents. His publication has about 7700 citations and contains about *43-h index*. He has co-edited a Journal issue of Catalysis Today “Hydroprocessing of Heavy Oil Fractions”. He has been assigned a position in the Editorial team of “Int. J. of Oil, Gas and Coal Technology”. He has co-edited a book, “Asphaltenes: Chemical Transformations During Hydroprocessing of Heavy Oils”.

**Employment History: Professional Training and Development since joined KISR 2008**

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| **Position** | **Experience/Skill** | **Period** | **Workplace** |
| Research Scientist | * Development of catalyst for deep HDS/HDM and residue * Upgrading heavy oil using hydroprocessing * Asphaltene characterization and its mitigation techniques * Crude to chemical conversion or refinery integration * Waste auto-exhaust catalyst and noble metal recovery * CO2 utilization and its conversion to chemicals * Graphene synthesis using waster asphaltene * Liquid catalyst synthesis for heavy oil hydroprocessing | Nov. 2008 to till today | KISR, **Kuwait** |
| Research Scientist | * Evaluation of lab prepared catalysts in micro-flow and bench-scale reactors * Selective Separation of V and Ni compounds from extra heavy oil * Desulfurization/demetallization of extra-heavy oil using selective oxidation * Rheological Properties of extra heavy/extra heavy crude oils | 2006 to 2008 | IMP, **Mexico** |
| Post-doc-fellow | * Synthesis of wide pore catalysts for HDT of Maya crude * Characteristics of HDM catalysts: textual properties, XRD, *in-situ* FTIR, 13C-NMR, SEM-EDAX, TEM, TPR, TPS, etc. * Effect of support on real feed (HDT functionalities) * Synthesis of SBA-15 and its application to the heavy oil | 2002 to 2006 | IMP, **Mexico** |
| Post-doc-fellow | * Effect of H2S on HDS, HYD, and HDN * Effect of H2S on real feedstock (Gas Oil) * Effect of nitrogen compounds on HDS and HYD * TGA analysis of H2S adsorption using *Magnetic Balance* * Characterization of CoMo catalysts by *in-situ* FT-IR (CO2, pyridine, low-temperature CO probe molecules) * Hydrotalcite-based CoMo catalysts for HDS and HYD * Preparation of HDT catalysts using chelating agents | 2001 to 2002 | CNRS, **France** |
| Research Associate | * Synthesis and modification of KLM zeolite * Preparation of Pt-Pd/zeolite catalyst for reforming | 2000 to 2001 | IIP, CSIR, **India** |

**Current Research Contracts:** Nov. 2008- till today

Assigned as Program Manager for “**Optimization of Petroleum Refinery Processes (OPRP) Program**” at PRC, KISR, from June 2016 to June 2018.

My responsibilities include structuring the new activities, develop available national manpower, setting up basic research laboratory for sulfide catalyst, develop an innovative proposal for industrial applications, enhance the peer-reviewed publication, which adds value to the petroleum refining department in general, and improve the image of the center at international level.

**Current Research Projects:**

* Under consideration: Turquoise and blue hydrogen production using natural gas as a feedstock
* Project PF107K: Synthesis of graphene using waste asphaltene as a source of carbon material
* PI in a project entitled “Electrochemical Valorization of CO2 into C2+ Products” (April 2022)
* PI in project PF099K: Recovery of noble metal from auto-exhaust and reforming Spent catalysts
* Project Leader PF083C: Impact of Hydroprocessing Catalyst Properties and Compositions on Asphaltene Deposition(2 years, completed, March 2020).
* Project Leader PF056C: Development of Carbon Supported Hydrodemetallization Catalyst for Kuwaiti Heavy Crude Oil, sponsored by KFAS, Kuwait(2 and half years; completed Feb. 2016).
* Project Leader PF053K: Development of Mild Hydrocracking Catalyst for Kuwaiti Residue to Enhance Middle Distillate Yield, sponsored by KISR (3 years, completed, March 2013)
* Participating as Principal Investigator (PF074K, PF099K and PF0100K); Task Leader (completed: PF037C, PF058K, PF058K, PF080K; PF085K, PF092C, PF095K).
* Spent hydroprocessing catalyst recovery and it's waste management
* Structural characterization of asphaltene
* Clean fuel: hydroprocessing catalyst and their inhibition studies
* Enhancement of fuel efficiency by improving cetane number

**Projects:** Since 1994 extensively participated & experienced in following sponsored projects:

* Kinetic Studies of Hydrodesulphurization of Naphtha with UCIL Catalyst(CoMo/Al2O3), United Catalysts India Ltd. (UCIL), 1994, IIP, **India**
* Development of Catalyst for Dehydrogenation of Butane to Butene (Pt-Sn/ZnAl2O4, MgAl2O4), Adarsh Chem. and Fertilizers Ltd. 1995, IIP, **India**
* Development of zeolite based catalyst for Natural Gas Liquid (NGL) to Gas and Gasoline (NTGG), Gas Authority India Ltd. (GAIL). 1996, IIP, **India**
* Development of Zeolite based Catalyst for Light Naphtha Aromatization, Bharat Petroleum Corp. Ltd. (BPCL) India. 1997-98, IIP, **India**
* Development of Zeolite based Reforming Catalysts for Aromatic Production, sponsored by Centre for High Technology (CHT), IIP, **India**
* Qualitative and quantitative studies of the inhibitive effect by H2S on the activity of hydrotreating Catalysts: Relationship between catalytic activity and the amount of adsorbed H2S species, sponsored by Conseil Regional de Basse-Normandie, 2001-2002, LCS-CNRS, **France**.
* Development of catalyst for Maya crude (API gravity 22) hydrotreating, PEMAX, IMP **Mexico**
* Development of catalyst for selective conversion of heavy oil into the gasoline, PEMAX, IMP **Mexico**
* Study of the di-aromatics opening Reactions using a catalyst that had been hydrogenating LCO,Texas A&M (USA), IMP and UNAM, Mexico, 2007-2009
* Up-gradation of Extra heavy Crude oil: using non heterogeneous catalytic methods, PEMAX, IMP **Mexico**

**PUBLICATION**

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| **No** | **Publication** | | | | | | |
|  | **US Patent** | | | | | | |
|  | **Mohan S. Rana,** Meena Marafi,Faisal S. AlHumaidan, and Khalidah AlDalama, Catalyst for Mild-Hydrocracking of Residual Oil, **US Patent 9919293** (Application Number 15/652,088, Filing date July 17, 2017, Patent Granted Date: March 20, **2018**) | | | | | | |
|  | **Mohan S. Rana**, Faisal S. AlHumaidan, Hydrodemetallization catalysts, **US Patent 9861972** (Application Number: 15/479260; Filing Date: 04/04/2017; Patent Granted Date: Jan. 09, **2018**) | | | | | | |
|  | Faisal S AlHumaidan, **Mohan S Rana**, V. Mari, [Synthesizing graphene derivatives from asphaltene](https://scholar.google.com/citations?view_op=view_citation&hl=en&user=tNhz85MAAAAJ&sortby=pubdate&citation_for_view=tNhz85MAAAAJ:in81wS_EFI4C), US Patent 11,505,466, (22/11/2022)  (KISR #.......) | | | | | | |
|  | **BOOK** | | | | | | |
|  | [Jorge Ancheyta](http://www.amazon.com/exec/obidos/search-handle-url/102-7317190-1373723?%5Fencoding=UTF8&search-type=ss&index=books&field-author=Jorge%20Ancheyta), [F. Trejo](http://www.amazon.com/exec/obidos/search-handle-url/102-7317190-1373723?%5Fencoding=UTF8&search-type=ss&index=books&field-author=F.%20Trejo) and [**Mohan S. Rana**](http://www.amazon.com/exec/obidos/search-handle-url/102-7317190-1373723?%5Fencoding=UTF8&search-type=ss&index=books&field-author=Mohan%20Singh%20Rana)**,** Asphaltenes: Chemical Transformation during Hydroprocessing of Heavy Oils,Taylor & Francis Group, LLC, New York, CRC ISBN-10: 1420066307, ISBN-13: 978-1420066302 (July, 2009). | | | | | | |
|  | **Encyclopaedia Chapter**  J. Ancheyta, and **Mohan S. Rana**, Future Technology in Heavy Oil Processing, in *Encyclopaedia of Life Support Systems (EOLSS),* Developed under the Auspices of the UNESCO, Eolss Publishers, Oxford, UK, 2008. [http://www.eolss.net] | | | | | | |
| **Journal Publications** | | | | | | | |
|  | F.S. AlHumaidan, M.A. Halabi, **Mohan S. Rana**, M Vinoba, [Blue hydrogen: Current status and future technologies](https://scholar.google.com/citations?view_op=view_citation&hl=en&user=tNhz85MAAAAJ&sortby=pubdate&citation_for_view=tNhz85MAAAAJ:HNqp4bORoCIC), *Energy Conversion and Management* 283, May 2023, 116840 | | | | | | |
|  | F.S AlHumaidan, **Mohan S Rana**, M.Vinoba, H. M AlSheeha, A.A.Ali, [Synthesis of graphene derivatives from asphaltenes and effect of carbonization temperature on their structural parameters](https://scholar.google.com/citations?view_op=view_citation&hl=en&user=tNhz85MAAAAJ&sortby=pubdate&citation_for_view=tNhz85MAAAAJ:xggF7591RyAC)  FS AlHumaidan, MS Rana, M Vinoba, HM AlSheeha, AA Ali, ...  RSC advances 13 (12), 2023, 7766-7779 | | | | | | |
|  | A. Pathak, **Mohan S Rana**, H Al-Sheeha, R Navvmani, H.M. Al-Enezi, S. Al-Sairafi, J. Mishra [Feasibility of bioleaching integrated with a chemical oxidation process for improved leaching of valuable metals from refinery spent hydroprocessing catalyst](https://scholar.google.com/citations?view_op=view_citation&hl=en&user=tNhz85MAAAAJ&sortby=pubdate&citation_for_view=tNhz85MAAAAJ:PQ1NLOpCoVAC), *Environmental Science and Pollution Research*, 29 (23), (2022), 34288-34301. (Q1; IF: 5.19) (KISR#.........) | | | | | | |
|  | A. Pathak, H. Al-Sheeha, R Navvamani, R. Kothari, M. Marafi, **Mohan S Rana**, [Recycling of platinum group metals from exhausted petroleum and automobile catalysts using bioleaching approach: a critical review on potential, challenges, and outlook](https://scholar.google.com/citations?view_op=view_citation&hl=en&user=tNhz85MAAAAJ&sortby=pubdate&citation_for_view=tNhz85MAAAAJ:GjXqcohcbckC), Reviews in Environmental Science and Bio/Technology, 21, 2022, 1035-1059. (**Q1; IF: 14.284**)  (KISR #.......) | | | | | | |
|  | F.S AlHumaidan, **Mohan S Rana**, M.Vinoba, N.Rajasekaran, H.Y.AlHenyyan, A.A.Ali, [Synthesizing few-layer carbon materials from asphaltene by thermal treatment](https://www.sciencedirect.com/science/article/pii/S0925963522004988), Diamond and Related Materials 129, 2022, 109316. (**Q1; IF: 3.315**)  (KISR #.......) | | | | | | |
|  | M Al-Samhan, J Al-Fadhli, AM Al-Otaibi, F Al-Attar, R Bouresli, **Mohan S Rana**, [Prospects of refinery switching from conventional to integrated: An opportunity for sustainable investment in the petrochemical industry](https://scholar.google.com/citations?view_op=view_citation&hl=en&user=tNhz85MAAAAJ&sortby=pubdate&citation_for_view=tNhz85MAAAAJ:BZGggv0hN9sC), *Fuel* 310, 2022, 122161. | | | | | | |
|  | R. Navvamani, M. Vinoba, H. Al-Sheeha, and **Mohan S. Rana**, The Synergistic Character of Highly N-Doped Coconut–Shell Activated Carbon for Efficient CO2 Capture,ChemistrySelect, 6(34), 2021, 9149-9156. (KISR # 16861). | | | | | | |
|  | F.S. AlHumaidan, **Mohan S. Rana**, Determination of Asphaltene Structural Parameter by Raman Spectroscopy, Journal of Raman Spectroscopy, In press Aug. 21, 2021, **DOI:** 10.1002/jrs.6233. (KISR # 16830). | | | | | | |
|  | **Mohan S. Rana**, F. S. AlHumaidan, R. Bouresli, and R. Navvamani, Guard Bed Catalyst: Impact of Textural properties and their Characterization, Molecular Catalysis, 502, 2021, 111375. (KISR # 16695). | | | | | | |
|  | F.S. AlHumaidan, **Mohan S. Rana**, H.M.S. Lababidi, A. Hauser, Pyrolysis of asphaltenes derived from residual oils and their thermally treated pitch, ACS Omega 5(38), 2020, 24412-24421. (KISR # 16266). | | | | | | |
|  | V Samano, **Mohan S. Rana**, J Ancheyta, An easy approach based on textural properties to evaluate catalyst deactivation during heavy oil hydrotreating, Catalysis Communications 133, 2020, 105823. (KISR # 16834). | | | | | | |
|  | Faisal S. AlHumaidan, **Mohan S Rana**, N.J. Tanoli, H.M. Lababidi, N.A. Al-Najdi, Changes in Asphaltene Surface Topography with Thermal Treatment, Arabian Journal of Chemistry, 13 (5), 2020, 5377-5389. (KISR # 16234). | | | | | | |
|  | Sakeena H. AlSairafi, N. AlNajdi, H. Al Sheeha, **Mohan S. Rana**,Synthesis and characterization of alumina support for catalytic reactions,Reaction Kinetics, Mechanisms and Catalysis 129, 2020, 297-313. (KISR # 16828). | | | | | | |
|  | A. Marafi, A. Al-Barood, H. AlBazzaz, **Mohan S. Rana**, Effect of operating conditions on HDS of CGO blended middle distillate, Catalysis Today, 353, 2020, 47-52. (KISR # 16404). | | | | | | |
|  | **Mohan S. Rana**, Faisal S. AlHumaidan, R. Navvamani, Synthesis of large pore carbon-alumina supported catalysts for hydrodemetallization, Catalysis Today, 353, 2020, 204-212. (KISR # 16213). | | | | | | |
|  | A. Marafi, H. Bazzaz, **Mohan. S. Rana**, Hydroprocessing of heavy residual oil: Opportunities and challenges, Catalysis Today, 329, 2019, 125-134. (KISR # 14855). | | | | | | |
|  | M. Marafi, **Mohan S. Rana**, Metal leaching from refinery waste hydroprocessing catalyst, Journal of Environmental Science and Health, Part A, 53 (11), 2018, 951-959. (KISR # 15073) | | | | | | |
|  | **Mohan S Rana**, A. Al-Barood, R Bouresli, AW Al-Hendi, N Mustafa, Effect of organic nitrogen compounds on deep hydrodesulfurization of middle distillate, Fuel Processing Technology 177, 2018, 170-178. (KISR # 14878). | | | | | | |
|  | F.S. AlHumaidan, **Mohan S. Rana**, and H.M. S. Lababidi, Thermal Cracking effect on Asphaltene structure and morphology, Energy & Fuel, 31 (4), 2017, 3812-3820. (KISR # 13218). | | | | | | |
|  | **Mohan S. Rana,** Mari Vinoba, Faisal S. AlHumaidan,Sustainability challenges in oil and gas development in the Middle East and North Africa,Current Sustainable Energy Report, 4(4), 2017, 232–244. (KISR # 14464). | | | | | | |
|  | Mari Vinoba, M. Bhagiyalakshmi, Y. Alqaheem, A. A. Alomair, A. Perez and **Mohan S. Rana**,Recent Progress of Fillers in Mixed Matrix Membranes for CO2 Separation: A Review,Separation and Purification Technology 188, 2017, 431-450. (KISR # 14157). | | | | | | |
|  | **Mohan S. Rana**, Heavy Oil Refining Processes and Petrochemicals: A Role of Catalysis, invited paper in Recent Advances in Petrochemical Science (RAPSCI) 2 (1), 2017, 1-3. | | | | | | |
|  | F.S. AlHumaidan, A. Hauser, **Mohan S. Rana**, and H.M. S. Lababidi, Impact of thermal treatment on asphaltene functional groups, Energy & Fuels, 2016, 30(4), 2892–2903. (KISR # 13233). | | | | | | |
|  | F.S AlHumaidan, A. Hauser, **Mohan S. Rana,** H.M.S. Lababidi, M. Behbehani, Changes in asphaltene structure during thermal cracking of residual oils: XRD study, Fuel, 150, 2015, 558-564. (KISR # 12614). | | | | | | |
|  | **Mohan S. Rana**, K. Ravindranath, and N. Tanoli, Degradation of thermocouple in a temperature programmed sulphidation reactor, Engineering Failure Analysis, 55, 2015. 79-86. (KISR # 12763). | | | | | | |
|  | F Trejo, **Mohan S Rana**, J Ancheyta, S Chavez, Influence of support and supported phases on catalytic functionalities of hydrotreating catalysts, Fuel, 138, 2014, 104-110. | | | | | | |
|  | **Mohan S. Rana**, J. Ancheyta, S. K. Sahoo, P. Rayo, Carbon and metal deposition during the hydroprocessing of Maya crude oil, Catalysis Today, 220-222, 2014. 97-105. | | | | | | |
|  | H. Al-Sheeha, Meena Marafi, Vira Raghavan, and **Mohan S. Rana**, Recycling and Recovery Routes for Spent Hydroprocessing Catalyst Waste, Ind. Eng. Chem. Res., **2013**, 52 (36), 12794-12801. | | | | | | |
|  | [F.](http://www.scopus.com/authid/detail.url?origin=resultslist&authorId=6601953455&zone=) Trejo, **Mohan S. Rana,** J.[Ancheyta,](http://www.scopus.com/authid/detail.url?origin=resultslist&authorId=55011638000&zone=) A. [Rueda,](http://www.scopus.com/authid/detail.url?origin=resultslist&authorId=55218092100&zone=)  [Hydrotreating catalysts on different supports and its acid-base properties](http://www.scopus.com/record/display.url?eid=2-s2.0-84861076438&origin=resultslist&sort=plf-f&src=s&sid=PB1rgHT6gbqtydqEtoX1sha%3a50&sot=aut&sdt=a&sl=34&s=AU-ID%28%22Rana%2c+Mohan+S.%22+7006672842%29&relpos=1&relpos=1&searchTerm=AU-ID(\%22Rana,%20Mohan%20S.\%22%207006672842)), Fuel, 100, 2012, 163-172. | | | | | | |
|  | [C.](http://www.scopus.com/authid/detail.url?origin=resultslist&authorId=15829455800&zone=) Leyva, J. Ancheyta, [A.](http://www.scopus.com/authid/detail.url?origin=resultslist&authorId=6603144444&zone=) Travert, [F.](http://www.scopus.com/authid/detail.url?origin=resultslist&authorId=7004224758&zone=) Mauge, [L.](http://www.scopus.com/authid/detail.url?origin=resultslist&authorId=14420252700&zone=) Mariey, [J.](http://www.scopus.com/authid/detail.url?origin=resultslist&authorId=35551024700&zone=) Ramírez, [**Mohan S.**](http://www.scopus.com/authid/detail.url?origin=resultslist&authorId=7006672842&zone=) **Rana,** [Activity and surface properties of NiMo/SiO2-Al2O3 catalysts for hydroprocessing of heavy oils](http://www.scopus.com/record/display.url?eid=2-s2.0-84859897926&origin=resultslist&sort=plf-f&src=s&sid=PB1rgHT6gbqtydqEtoX1sha%3a50&sot=aut&sdt=a&sl=34&s=AU-ID%28%22Rana%2c+Mohan+S.%22+7006672842%29&relpos=0&relpos=0&searchTerm=AU-ID(\%22Rana,%20Mohan%20S.\%22%207006672842)), [Applied Catalysis A: General](http://www.scopus.com/source/sourceInfo.url?sourceId=16342&origin=resultslist) 425-426 , 2012, 1-12. (KISR # 11014). | | | | | | |
|  | [F.](http://www.scopus.com/authid/detail.url?origin=resultslist&authorId=6601953455&zone=) Trejo, **Mohan S.** [**Rana,**](http://www.scopus.com/authid/detail.url?origin=resultslist&authorId=7006672842&zone=) J.Ancheyta, [Genesis of acid-base support properties with variations of preparation conditions: Cumene cracking and its kinetics](http://www.scopus.com/record/display.url?eid=2-s2.0-79951986675&origin=resultslist&sort=plf-f&src=s&sid=PB1rgHT6gbqtydqEtoX1sha%3a50&sot=aut&sdt=a&sl=34&s=AU-ID%28%22Rana%2c+Mohan+S.%22+7006672842%29&relpos=2&relpos=2&searchTerm=AU-ID(\%22Rana,%20Mohan%20S.\%22%207006672842)), [Industrial and Engineering Chemistry Research](http://www.scopus.com/source/sourceInfo.url?sourceId=13057&origin=resultslist) 50 (5), 2011, 2715-2725. (KISR # 10409). | | | | | | |
|  | [F.](http://www.scopus.com/authid/detail.url?origin=resultslist&authorId=6601953455&zone=) Trejo, **Mohan S. Rana,** J.Ancheyta, [Thermogravimetric determination of coke from asphaltenes, resins and sediments and coking kinetics of heavy crude asphaltenes](http://www.scopus.com/record/display.url?eid=2-s2.0-77949658688&origin=resultslist&sort=plf-f&src=s&sid=PB1rgHT6gbqtydqEtoX1sha%3a50&sot=aut&sdt=a&sl=34&s=AU-ID%28%22Rana%2c+Mohan+S.%22+7006672842%29&relpos=4&relpos=4&searchTerm=AU-ID(\%22Rana,%20Mohan%20S.\%22%207006672842)), [Catalysis Today](http://www.scopus.com/source/sourceInfo.url?sourceId=16377&origin=resultslist) 150 (3-4) , 2010, 272-278. (KISR # 9995). | | | | | | |
|  | [F.](http://www.scopus.com/authid/detail.url?origin=resultslist&authorId=6601953455&zone=) Trejo, **Mohan S. Rana,** J.Ancheyta, [Stucture](http://www.scopus.com/record/display.url?eid=2-s2.0-77949658688&origin=resultslist&sort=plf-f&src=s&sid=PB1rgHT6gbqtydqEtoX1sha%3a50&sot=aut&sdt=a&sl=34&s=AU-ID%28%22Rana%2c+Mohan+S.%22+7006672842%29&relpos=4&relpos=4&searchTerm=AU-ID(\%22Rana,%20Mohan%20S.\%22%207006672842)) Characterization of Asphaltene Obtained from Hydroprocessed Crude Oils by SEM and TEM, [Energy](http://www.scopus.com/source/sourceInfo.url?sourceId=16377&origin=resultslist) & Fuel 23, 2009, 429-439. (KISR # 9997). | | | | | | |
|  | **MONOGRAPH:** (All time highest cited article published by KISR) | | | | | | |
|  | [A.](http://www.scopus.com/authid/detail.url?origin=resultslist&authorId=7003761067&zone=) Stanislaus, A. [Marafi,](http://www.scopus.com/authid/detail.url?origin=resultslist&authorId=6602000057&zone=) **Mohan S.** [**Rana,**](http://www.scopus.com/authid/detail.url?origin=resultslist&authorId=7006672842&zone=)[Recent advances in the science and technology of ultra low sulfur diesel (ULSD) production](http://www.scopus.com/record/display.url?eid=2-s2.0-77954709904&origin=resultslist&sort=plf-f&src=s&sid=PB1rgHT6gbqtydqEtoX1sha%3a50&sot=aut&sdt=a&sl=34&s=AU-ID%28%22Rana%2c+Mohan+S.%22+7006672842%29&relpos=3&relpos=3&searchTerm=AU-ID(\%22Rana,%20Mohan%20S.\%22%207006672842)), [Catalysis Today](http://www.scopus.com/source/sourceInfo.url?sourceId=16377&origin=resultslist) 153 (1-2), 2010, 1-68. (KISR # 9916). | | | | | | |
|  |  | | | | | | |
|  | [Leyva, C.](http://www.scopus.com/authid/detail.url?origin=resultslist&authorId=15829455800&zone=), **Mohan S.** [**Rana,**](http://www.scopus.com/authid/detail.url?origin=resultslist&authorId=7006672842&zone=) [Trejo, F.](http://www.scopus.com/authid/detail.url?origin=resultslist&authorId=6601953455&zone=), [Ancheyta, J.](http://www.scopus.com/authid/detail.url?origin=resultslist&authorId=7006124284&zone=) [NiMo supported acidic catalysts for heavy oil hydroprocessing](http://www.scopus.com/record/display.url?eid=2-s2.0-60049095332&origin=resultslist&sort=plf-f&src=s&sid=PB1rgHT6gbqtydqEtoX1sha%3a50&sot=aut&sdt=a&sl=34&s=AU-ID%28%22Rana%2c+Mohan+S.%22+7006672842%29&relpos=5&relpos=5&searchTerm=AU-ID(\%22Rana,%20Mohan%20S.\%22%207006672842)), [*Catalysis Today*](http://www.scopus.com/source/sourceInfo.url?sourceId=16377&origin=resultslist)141 (1-2) , 2009, 168-175. | | | | | | |
|  | [Rayo, P.](http://www.scopus.com/authid/detail.url?origin=resultslist&authorId=6506701129&zone=), [Ramírez, J.](http://www.scopus.com/authid/detail.url?origin=resultslist&authorId=35551024700&zone=), [**Rana, M.S.**](http://www.scopus.com/authid/detail.url?origin=resultslist&authorId=7006672842&zone=)**,** [Ancheyta, J.](http://www.scopus.com/authid/detail.url?origin=resultslist&authorId=7006124284&zone=), [Aguilar-Elguézabal, A.](http://www.scopus.com/authid/detail.url?origin=resultslist&authorId=8591650300&zone=) [Effect of the incorporation of Al, Ti, and Zr on the cracking and hydrodesulfurization activity of NiMo/SBA-15 catalysts](http://www.scopus.com/record/display.url?eid=2-s2.0-61549135703&origin=resultslist&sort=plf-f&src=s&sid=PB1rgHT6gbqtydqEtoX1sha%3a50&sot=aut&sdt=a&sl=34&s=AU-ID%28%22Rana%2c+Mohan+S.%22+7006672842%29&relpos=6&relpos=6&searchTerm=AU-ID(\%22Rana,%20Mohan%20S.\%22%207006672842)), [*Industrial and Engineering Chemistry Research*](http://www.scopus.com/source/sourceInfo.url?sourceId=13057&origin=resultslist) *48 (3), 2009,* 1242-1248. | | | | | | |
|  | **Mohan S. Rana**, J. Ancheyta, S.K. Maity, P. Rayo, Heavy crude oil hydroprocessing: A zeolite based CoMo catalyst and its spent catalyst characterization, *Catalysis Today, 130(2-4) (2008) 411-420*. | | | | | | |
|  | P. Rayo, **Mohan S. Rana**, J. Ramírez, J. Ancheyta, and A. A.-Elguezabal, Effect of the preparation method on the structural stability and hydrodesulfurization activity of NiMo/SBA-15 catalysts, *Catalysis Today, 130(2-4) (2008) 283-291*. | | | | | | |
|  | R.S. Rodrigo, F.H.-López, K.M. Juarez, A.C. Mares, J.A. M. Banda, A.O. Sarabia, J. Ancheyta, **Mohan S. Rana**, Synthesis, characterization and catalytic properties of NiMo/Al2O3-MCM-41 catalyst for dibenzothiophene hydrodesulfurization, *Catalysis Today, 130(2-4) (2008) 309-319*. | | | | | | |
|  | C. Leyva, **Mohan S. Rana**, Jorge Ancheyta, Surface characterization of Al2O3-SiO2supported NiMo catalysts: an effect of support composition, *Catalysis Today, 130(2-4) (2008) 345-353*. | | | | | | |
|  | S. K. Maity, G. A. Flores, J. Ancheyta, **Mohan. S. Rana**, Effect of preparation methods and content of phosphorous on hydrotreating, *Catalysis Today, 130(2-4) (2008) 374-381*. | | | | | | |
|  | F. Trejo, **Mohan S. Rana** and J. Ancheyta, CoMo/MgO-Al2O3 supported catalysts: An alternative approach to prepare HDS catalysts, *Catalysis Today, 130(2-4) (2008) 327-336*. | | | | | | |
|  | **Mohan S. Rana**, J. Ancheyta, S. K. Maity and G. Marroquin,Refinery configuration for heavy and synthetic crude processing: a future fuels demand, *Int. J. Oil, Gas and Coal Technology, 1(3), 2008, 250-282*. | | | | | | |
|  | S.K. Maity, V. H. Pérez, J. Ancheyta, **Mohan S. Rana**, G. Centeno, Effect of asphaltene contained in feed on deactivation of Maya crude hydrotreating catalyst, *Petroleum Science and Technology 25 (1-2) (2007) 241-250*. | | | | | | |
|  | **Mohan S. Rana,** J. Ancheyta, S. K. Maity and P. Rayo, Hydrotreating of Maya crude Oil: I. Effect of support composition and its pore-diameter on asphaltene conversion, *Petroleum Science and Technology 25 (1-2) (2007) 187-200*. | | | | | | |
|  | **Mohan S. Rana**, J. Ancheyta, S. K. Maity, P. Rayo, Hydrotreating of Maya crude Oil: II. Generalized relationship between hydrogenolysis and hydrodeasphaltenization (HDAs), *Petroleum Science and Technology 25 (1-2) (2007) 201-214*. | | | | | | |
|  | P. Rayo, J. Ramirez, J. Ancheyta and **Mohan S. Rana,** HDS, HDN, HDM, and HDAs of Maya Crude, *Petroleum Science and Technology 25 (1-2) (2007) 215-229*. | | | | | | |
|  | **Mohan S. Rana**, E. M. Ramírez, C. Leyva, J. Ancheyta, Effect of catalyst preparation and support composition on hydrodesulfurization of dibenzothiophene, *Fuel 86(9) (2006) 1254-1263*. | | | | | | |
|  | **Mohan S. Rana**, J. Ancheyta, P. Rayo, S.K. Maity, Inhibition effect by added H2S on heavy oil hydroprocessing over CoMo/Al2O3 catalyst, *Fuel 86(9) (2007) 1263-1269*. | | | | | | |
|  | **Mohan S. Rana**, V. Samano, J. Ancheyta, J. A. I Gongora, A review of recent advances on process technologies for up grading of heavy oils, *Fuel 86(9) (2007) 1216-1231*. | | | | | | |
|  | C. Leyva, J. Ancheyta, **Mohan S. Rana,** G. Marroquín, A comparative study on the effect of promoter content of hydrodesulfurization catalysts at different evaluation scales, *Fuel 98(9) (2007) 12632-1239*. | | | | | | |
|  | S.K. Maity, V. H. Pérez, J. Ancheyta, **Mohan S. Rana**, Study of Catalyst Deactivation during hydrotreating of Maya crude in a batch reactor, *Energy & Fuels 2007, 21, 636-639*. | | | | | | |
|  | **Mohan S. Rana,** J. Ramírez, A. G.-Alejandre, J. Ancheyta, L. Cedeño and S. K. Maity, Support Effect of in CoMo catalysts prepared with chelating agents, *J. Catal. 246 (2007) 100-108*. | | | | | | |
|  | C. Leyva, **Mohan S. Rana**, F. Trejo, J. Ancheyta, On the use of acid-base supported catalysts for hydroprocessing of heavy petroleum, *Ind. Eng. Chem. Res., 46 (23), (2007) 7448 -7466*. | | | | | | |
|  | S.K. Maity, J. Ancheyta, **Mohan S. Rana**, P. Rayo, Alumina-Titania Mixed Oxide Used as Support for Hydrotreating Catalysts of Maya Heavy Crude - Effect of Support Preparation Methods, *Energy & Fuels, 20 (2006) 427-431*. | | | | | | |
|  | **Mohan S. Rana,** J. Ancheyta, S. K. Maity y P. Rayo, Efecto del Soporte y el diámetro de poro en la hidrodesmetalización de Crudo Maya,*Revista Mexicana de Ingeniería Química Vol. 5(3) (2006) 227-235*. | | | | | | |
|  | V. [Samano,](http://www.eiencompass.com/c/s/C?CID=quickSearchCitationFormat&searchWord1=%7bSamano%2C+V.%7d&section1=AU&database=1024&startYear=1900&endYear=2007&yearselect=yearrange)  F. [Guerrero,](http://www.eiencompass.com/c/s/C?CID=quickSearchCitationFormat&searchWord1=%7bGuerrero%2C+F.%7d&section1=AU&database=1024&startYear=1900&endYear=2007&yearselect=yearrange) **Mohan S.** [**Rana,**](http://www.eiencompass.com/c/s/C?CID=quickSearchCitationFormat&searchWord1=%7bRana%2C+M.S.%7d&section1=AU&database=1024&startYear=1900&endYear=2007&yearselect=yearrange) J. [Ancheyta,](http://www.eiencompass.com/c/s/C?CID=quickSearchCitationFormat&searchWord1=%7bAncheyta%2C+J.%7d&section1=AU&database=1024&startYear=1900&endYear=2007&yearselect=yearrange) Effect of deasphalting residue hydrotreating: A batch reactor study, *ACS National Meeting 232 (2006) 232nd* American Chemical Society Meeting and Exposition, 2006, San Francisco, CA. | | | | | | |
|  | S.K. Maity, J. Ancheyta, **Mohan S. Rana**, P. Rayo, Effect of Phosphorus on hydroprocessing activity of Maya heavy crude, *Catalysis Today, 109 (2005) 42-48.* | | | | | | |
|  | J. Ancheyta, **Mohan S. Rana**, Edward Furimsky, Hydroprocessing of Heavy Petroleum Feeds: Tutorial, *Catalysis Today, 109 (2005) 3-15*. | | | | | | |
|  | **Mohan S. Rana**, J. Ancheyta, S. K. Maity, and P. Rayo, Maya crude hydrodemetallization and hydrodesulfurization catalysts: an effect of TiO2 incorporation in Alumina,*Catalysis Today, 109 (2005) 61-68.* | | | | | | |
|  | J. Ramírez, P. Rayo, Aída G.-Alejandre, J. Ancheyta, **Mohan S. Rana,** Analysis of the hydrotreatment of heavy Maya Petroleum with NiMo catalysts supported on TiO2-Al2O3 binary oxides. Effect of the incorporation method of Ti, *Catalysis Today, 109 (2005) 54-60.* | | | | | | |
|  | J. Ancheyta, **Mohan S. Rana**, E. Furimsky, Hydroprocessing of heavy oil fractions, *Catalysis Today, 109 (2005) 1-3* (Preface). | | | | | | |
|  | **Mohan S. Rana**, J. Ancheyta, S. K. Maity and P. Rayo, Characteristics of Maya crude hydrodemetallization and hydrodesulfurization catalysts, *Catalysis Today 104 (2005) 86-93.* | | | | | | |
|  | S.K. Maity, J. Ancheyta, **Mohan. S. Rana**, Support Effect on Hydroprocessing of Maya Heavy Crude, *Energy & Fuels 19 (2005) 343-347*. | | | | | | |
|  | **Mohan S. Rana**, J. Ancheyta, P. Rayo, A comparative study for heavy oil hydroprocessing on the micro- and pilot plant: an effect of feed composition**,** *Catalysis Today, 109 (2005) 24-32.* | | | | | | |
|  | **Mohan S. Rana**, M.L. Huidobro, J. Ancheyta and M.T. Gómez, Effect of Support Composition on Hydrogenolysis of Thiophene and Maya crude, *Catalysis Today 107-108 (2005) 346-354.* | | | | | | |
|  | **Mohan S. Rana**, J. Ancheyta, P. Rayo and S. K. Maity, Effect of alumina preparation on hydrodemetallization and hydrodesulfurization of Maya crude, *Catal. Today, 98 (2004) 151-160.* (citation 22) | | | | | | |
|  | S.K. Maity, J. Ancheyta, F. Alonso, **Mohan S. Rana**, Preparation, Characterization and Evaluation of Maya Crude Hydrotreating Catalysts, *Catal. Today, 98 (2004) 193-199.* | | | | | | |
|  | **Mohan S. Rana**, J. Ancheyta, S. K. Maity and P. Rayo**,** Characteristics of Maya crude hydrodemetallization and hydrodesulfurization catalysts, *ACS Div. Pet. Chem.,* 228 (1) (2004) 660. | | | | | | |
|  | **Mohan S. Rana**, R. Navarro and Jacques Leglise,Competitive Effects of Nitrogen and Sulfur Content on Activity of Hydrotreating CoMo/Al2O3 Catalysts: a Batch Reactor Study, *Catal. Today, 98 (2004) 67-74.* | | | | | | |
|  | **Mohan S. Rana,** S. K. Maity, J. Ancheyta, G. Murali Dhar and T.S.R. Prasada Rao, Mo-Co(Ni)/ZrO2-SiO2 hydrotreating catalysts: physico-chemical characterization and activities studies, *Appl. Catal. A: Gen., 268 (2004) 89.* | | | | | | |
|  | **Mohan S. Rana,** S. K. Maity, J. Ancheyta, G. Murali Dhar and T.S.R. Prasada Rao, Cumene cracking functionalities on sulfided Co(Ni)Mo/TiO2-SiO2 catalysts, *Appl. Catal. A: Gen., 258 (2) (2004) 215.* | | | | | | |
|  | B. Caloch, **Mohan S. Rana** and J. Ancheyta, Improved hydrogenolysis (C-S, C-M) function with basic supported hydrodesulfurization catalysts, *Catal. Today, 98 (2004) 91-98.* | | | | | | |
|  | **M. S. Rana,** S. K. Maity, J. Ancheyta, G. Murali Dhar and T.S.R. Prasada Rao, TiO2-SiO2 supported hydrotreating catalysts: Physico-chemical characterization and activites, *Appl. Catal. A: Gen., 253 (1) (2003) 165*. | | | | | | |
|  | G. Murali Dhar, B. N. Srinivas, **M. S. Rana**, Manoj Kumar and S. K. Maity, Mixed oxide supported hydrodesulfurization catalysts- a review, *Catal. Today 86 (2003) 45****.*** | | | | | | |
|  | T. Chiranjeevi, P. Kumar, **M. S. Rana**, G. Murali Dhar, and T.S.R. Prasada Rao, Physico-chemical characterization and catalysis on mesoporous Al-HMS supported molybdenum hydrotreating catalysts, *J. Mol. Catal. A: Chem. 181 (2002) 109.* | | | | | | |
|  | T. Chiranjeevi, P. Kumar, **M. S. Rana**, G. Murali Dhar, and T.S.R. Prasada Rao, Characterization and Catalysis of Mesoporous MCM-41 Supported WS2 Hydrotreating Catalysts, *Stud. Surf. Sci. Catal., 135 (2001) 26-P-08.* | | | | | | |
|  | L.D. Sharma, M.Kumar, J.K. Gupta, **M. S. Rana**, V. S. Dangwal and G. Murali Dhar***,*** Characterization and Catalytic Activity of Ni-W/SiO2-Al2O3 Hydrocracking Catalysts, *Indian* *J. Chem. Tech.,* 8 (2001) 169***.*** | | | | | | |
|  | K.S. Rawat, **M. S. Rana** and G. Murali Dhar, Catalytic Functionalities of USY Zeolite Supported Hydrotreating Catalysts, *Stud. Surf. Sci. Catal., 135 (2001) 26-P-17.* | | | | | | |
|  | S. K. Maity, **M. S. Rana**, S.K. Bej, J. Ancheyta, G. Murali Dhar and T.S.R. Prasada Rao, Studies on Physico-Chemical Characterizations of Hydrotreating Catalysts Supported on High Surface Area Titania, *Appl. Catal., A, Gen., 205, (2001) 215-225.* | | | | | | |
|  | S. K. Maity, **M. S. Rana**, S.K. Bej, J. Ancheyta-Juárez, G. Murali Dhar and T.S.R. Prasada Rao, TiO2-ZrO2 Mixed Oxide as a Support for Hydrotreating Catalyst, *Catal. Letter, 72 (2001) 115-225.* | | | | | | |
|  | T. Chiranjeevi, P. Kumar, **M. S. Rana**, S. K. Maity, G. Murali Dhar and T.S.R. Prasada Rao, Characterization and Hydrodesulfurization Catalysis on WS2 Supported on Mesoporous Al-HMS Material, *Microporous and Mesoporous Material,* 44 (2001) 547-556. | | | | | | |
|  | **Mohan S. Rana**, B. N. Srinivas, S. K. Maity, G. Murali Dhar, and T. S. R. Prasada Rao, Origin of Cracking Functionality of Sulfided (Ni) CoMo/SiO2-ZrO2 Catalysts, *J. Catal.,*195 (2000) 31-37. | | | | | | |
|  | S. K. Maity**,** **M. S. Rana**, B. N. Srinivas**,** S. K. Bej,G. Murali Dhar, and T.S.R. Prasada Rao, Characterization and Evaluation of ZrO2 Supported Hydrotreating Catalysts, *J. Mol. Catal. A:Chem.,* 153 (2000) 121-127*.* | | | | | | |
|  | B. N. Srinivas, **Mohan S. Rana**, S. K. Maity, G. Murali Dhar, T.S.R. Prasada Rao***,*** TiO2-Al2O3 Supported Tungsten Sulfided Based Hydrodesulfurization Catalysts, *ACS Div. Pet. Chem.,* 45, (2000) 361***.*** | | | | | | |
|  | **Mohan S. Rana**, B. N. Srinivas, S. K. Maity*,* G. Murali Dhar and T.S.R. Prasada Rao, Catalytic Functionalities of TiO2 Based SiO2, Al2O3, ZrO2 Mixed Oxide Hydroprocessing catalysts, *Stud. Surf. Sci. Catal., 127 (1999) 397-400.* | | | | | | |
|  | B.N. Srinivas, S.K. Maity, V.V.D.N. Prasad**, Mohan S. Rana**, M. Kumar, G. Murali Dhar and T.S.R. Prasada Rao, Support Effect Studies on TiO2-Al2O3 Mixed Oxide Supported Hydroprocessing Catalysts, *Stud. Surf. Sci. Catal. 113 (1998) 497-506.* | | | | | | |
|  | **BOOK Chapters** | | | | | | |
|  | D. Bahzad, **Mohan S. Rana**, **Chapter 1**: **Petroleum Chemistry**, Hydrocarbon Biotechnology: Challenges and Future Trends, Eds.W. A. Ismail, et al., Feb. 2022, Apple Academic Press, CRC Press Taylor & Francis Group, LLC, Waretown, NJ. USA. (KISR # 16572). | | | | | | |
|  | **Mohan S. Rana**, Pablo Torres, Jorge Ancheyta, **Chapter 2**: Experimentation in Glass Reactor with Model Compounds; “Experimental Methods for Evaluation of Hydrotreating Catalysts”, Edited by J. Ancheyta. © John Wiley & Sons Ltd. Published 2020 by John Wiley & Sons Ltd.([doi.org/10.1002/9781119518037.ch2](https://doi.org/10.1002/9781119518037.ch2)) (KISR # 16831). | | | | | | |
|  | **Mohan S. Rana**, F. AlHumaidan, **Chapter 2: Statistical Data on Worldwide Coal Reserves, Production, Consumption and Future Demand:** “Coal Production and Processing Technology” ISBN: 13: 978-1-48225218-7, Eds.: M.R. Riazi, R. Gupta, 2016 CRC Press Taylor & Francis Group, LLC, Boca Raton, FL. (KISR # 13064) | | | | | | |
|  | M. Riazi, **Mohan S. Rana** and J. L. Pena Diez. 2013. **Chapter-3**, Worldwide statistical data on proved reserves, production and refining capacities of crude oil and natural gas, In American Society for Testing and Materials (ASTM) manual series MNL 58, Edited by M. R, Riazi, et al. ASTM International, West Conshohocken, PA, (ISBN-EB: 978-0-8031-8681-1, DOI: 10.1520/MNL5820131211503). (KISR # 11005). | | | | | | |
|  | **Mohan S. Rana**, J. Ancheyta; M. Riazi; and M. Marafi. 2013. **Chapter-33**, Future direction in petroleum and natural gas refining. In American Society for Testing and Materials (ASTM) manual series MNL 58, Edited by M. R, Riazi, et al. ASTM International, West Conshohocken, PA, (ISBN-EB: 978-0-8031-8681-1, DOI: 10.1520/MNL5820131214533). | | | | | | |
|  | **Mohan S. Rana**, S. K. Maity, J. Ancheyta, Maya heavy crude oil hydroprocessing catalysts, Chapter 7 “*Hydroprocessing Heavy Oil and Residua*, Taylor & Francis, New York 2006. ISBN: 0849374197; CRC Press. Chemical Industries Series Volume: 117 Eds.: J G. Speight and J Ancheyta. | | | | | | |
|  | J. Ramírez, **Mohan S. Rana**, J. Ancheyta, Characteristics of heavy oil hydroprocessing catalysts, Chapter 6: “*Hydroprocessing Heavy Oil and Residua*” Taylor & Francis, -New York 2006. ISBN: 0849374197; CRC Press. Chemical Industries Series Volume: 117 Eds.: J G. Speight and J. Ancheyta. | | | | | | |
|  | G. Murali Dhar, **Mohan S. Rana**, S. K. Maity, B. N. Srinivas**,** and T. S. R. Prasada Rao,Performance of Mo Catalysts Supported on TiO2-Based Binary Supports for Distillate Fuel Hydroprocessing, “*Chemistry of Diesel fuels*”, (C. Song, S. Hsu, & I. Mochida eds.), Chap.-8, Taylor & Francis, New York, 2000, ISBN-1560328452. | | | | | | |
|  | **Conference with Proceedings (Full Paper Published in Journal/Proceedings/Magazine)** | | | | | | |
|  | R. Navvamani, **Mohan S. Rana**, V. Mari, H. Al-Sheeha and A. Al-Enezi, “Acid-Base properties of modified activated carbon,” presented in 20th Kuwait/Japan Joint Symposium, “Advancement in Petroleum Refining Industries,” held 07-08 Feb. 2022, Kuwait. | | | | | | |
|  | R. [Navvamani](https://chemistry-europe.onlinelibrary.wiley.com/action/doSearch?ContribAuthorRaw=Rajasekaran%2C+Navvamani), [M. Vinoba](https://chemistry-europe.onlinelibrary.wiley.com/action/doSearch?ContribAuthorRaw=Vinoba%2C+Mari), [H. Al-Sheeha](https://chemistry-europe.onlinelibrary.wiley.com/action/doSearch?ContribAuthorRaw=Al-Sheeha%2C+Hanadi), [**Mohan S. Rana**](https://chemistry-europe.onlinelibrary.wiley.com/action/doSearch?ContribAuthorRaw=Rana%2C+Mohan+S), “Effective anchoring of Amine Moieties on Coconut shell-based activated carbon for CO2 capture” presented in a virtual conference **ESDACON 2021,** World Environment Summit 2, New Delhi, India | | | | | | |
|  | **Mohan S. Rana**, Faisal S. AlHumaidan, Large pore hydrodemetallization catalyst for heavy crude and residue oils, KNPC ResidHydrotreat, 2 (April 2018), **2018**, 58-59. (KISR 14526). | | | | | | |
|  | M Marafi, **Mohan S Rana**, Role of EDTA on Metal Removal from Refinery Waste catalysts, WIT Transactions on Ecology and the Environment, 231, **2018**, 154-164. (KISR 14784). | | | | | | |
|  | M. Marafi and **Mohan S. Rana.** Refining Waste Spent Hydroprocessing Catalyst and their Metal recovery. Published in World Academy of Science, Engineering and Technology, 11(10), **2017**, 873-877 (KISR 13905) | | | | | | |
|  | M. Marafi, **Mohan S. Rana**, Refinery Waste: Spent Hydroprocessing Catalyst and its Recycling Options, Waste Management, WIT press in a Volume of WIT Transactions, 202, pp-219-230, **2016**. (KISR 13287). | | | | | | |
|  | Sakeena H. AlSairafi, N.Al-Najdi, H. Al-Sheeha, Y. Al-Hunayyan, M.Y. Ahmad Hassan, and **Mohan S. Rana**. Effect of Sol-Gel Preparation Method on the Alumina Support its Characterization and Supported Hydrotreating Catalysts. Proceeding of 17th Kuwait Japan Joint Symposium Advancement in Petroleum Industries, Feb.2-3, 2016, pp-68-81. (KISR 13589) | | | | | | |
|  | **Mohan S. Rana**, Role of catalyst Preparation and Support Composition on Hydrodesulfurization. Proceeding of 16th Kuwait Japan Joint Symposium Kuwait, Jan. 13-14, 2015, pp-121-136. (KISR 12847). | | | | | | |
|  | M Marafi, **Mohan S Rana**, H Al-Sheeha, The recovery of valuable metals and recycling of alumina from a waste spent hydroprocessing catalyst: extraction with Na salts. Waste Management and the Environment VII [WIT Transactions on Ecology and the Environment](http://www.scopus.com/source/sourceInfo.url?sourceId=5700191202&origin=resultslist), 180, **2014,** pp. 15-27,. (KISR 11877). | | | | | | |
|  | M. Marafi and **Mohan S. Rana.** Recovery of metals from spent hydroprocessing catalyst waste: extraction with ammonium salt solution, Proceeding of 29th International Conference on Solid Waste Technology and Management, **2014**, pp-1-12. (KISR 13589). | | | | | | |
|  | **Mohan S. Rana**, Influence of support and supported phases on catalytic functionalities of hydrotreating catalysts, Proceeding of 15th Kuwait/Japan Joint Symposium: Advancement in Petroleum Refining Processes, Jan. 20-21, 2014, pp-13-28 (KISR 11975). | | | | | | |
|  | A. Marafi, A. Stanislaus, **Mohan S. Rana**, Impact of feedstock quality on clean diesel fuel Production, 9th International Colloquium Fuels - Conventional and Future Energy for Automobiles, Germany, **2013**, pp-567-573. (KISR 11372). | | | | | | |
|  | M. [Marafi, **Mohan S.**](http://www.scopus.com/authid/detail.url?origin=resultslist&authorId=6701703953&zone=)[**Rana,**](http://www.scopus.com/authid/detail.url?origin=resultslist&authorId=7006672842&zone=) R. [Navvamani,](http://www.scopus.com/authid/detail.url?origin=resultslist&authorId=55433717400&zone=) H. [Al-Sheeha](http://www.scopus.com/authid/detail.url?origin=resultslist&authorId=24474423500&zone=), [Utilization of waste spent hydroprocessing catalyst: Development of a process for full recovery of deposited metals and alumina support](http://www.scopus.com/record/display.url?eid=2-s2.0-84867911786&origin=resultslist&sort=plf-f&src=s&sid=kjcEjhsK4UzPW7yOareYG0l%3a190&sot=aut&sdt=a&sl=34&s=AU-ID%28%22Rana%2c+Mohan+S.%22+7006672842%29&relpos=0&relpos=0&searchTerm=AU-ID(\%22Rana,%20Mohan%20S.\%22%207006672842)), [WIT Transactions on Ecology and the Environment](http://www.scopus.com/source/sourceInfo.url?sourceId=5700191202&origin=resultslist), 163, **2012**, 237-249. (KISR 11097) | | | | | | |
|  | **Mohan S. Rana**, Heavy (Residue) hydroprocessing and its deactivated catalyst characterization, Proceeding of 14th Kuwait/Japan Joint Symposium: Advancement in Petroleum Refining Processes, Jan 15-16, 2013, pp-12-28. (KISR 12041). | | | | | | |
|  | **Mohan S. Rana**, J. Leglise, A study of inhibition effect by H2S and nitrogen compounds on activity of hydrotreating CoMo/Al2O3 catalyst, Proceeding of 13th Kuwait/Japan Joint Symposium: Advancement in Petroleum Refining Processes, Jan. 17-18, **2012**, pp-122-137. (KISR 11002). | | | | | | |
|  | **Mohan S. Rana**, A. Marafi and A. Stanislaus, Understanding the problem of asphaltene instability and its transformation during the hydroprocessing of heavy oils, presented in 12th Kuwait/Japan Joint Symposium: Advancement in Petroleum Refining Processes, Jan. 18-19, **2011**, pp-134. (KISR 10454). | | | | | | |
|  | **Invited Talk/Keynote Presentations** | | | | | | |
|  | **Keynote**  **Mohan S. Rana**, “An integrated approach to Heterogeneous Catalysis: Model Testing and in-situ Characterization”, keynote presentation at 4th International Conference and Exhibition on Laboratory Technology (LABTECH), held 2017, in Manama Bahrain. (KISR 14535) | | | | | | |
|  | **Plenary Talk**  **Mohan S. Rana**, “Recent Advances in Residue Hydroprocessing”, plenary speaker at “The IV Scientific-Technological Symposium Catalytic Hydroprocessing in oil refining (STS HydroCat – 2021)” held 2021 (Virtual), Russia. (KISR16676). | | | | | | |
|  | **Conference (Abstract with Oral and Poster Presentation)** | | | | | | |
|  | F. S. AlHumaidan, **Mohan S. Rana**, R. Navvamani, Guardbed catalyst: Role of textural properties and their characterization,poster presention to The IV Scientific-Technological Symposium CATALYTIC HYDROPROCESSING IN OIL REFINING (STS HydroCat) held in Russia (virtual) on April 26 – 30, 2021. (KISR16679). | | | | | | |
|  | A. Marafi, H. Albazzaz, **Mohan S. Rana**, A case study: Hydrotreating of coker and gas oil blend to produce high quality diesel fuel, Presented in 8th International Symposium on Advances in Hydroprocessing of Oil Fractions (ISAHOF 2019) Mazatlán, June 9-12, 2019, Mexico. (KISR 16404). | | | | | | |
|  | **Mohan S. Rana**, F. S. AlHumaidan, R. Navvamani, Hydroprocessing of heavy oil and residue: A role of catalyst, Presented in 8th International Symposium on Advances in Hydroprocessing of Oil Fractions (ISAHOF 2019) Mazatlán, June 9th-12th, 2019, Mexico. (KISR15644). | | | | | | |
|  | M. Marafi, **Mohan S. Rana**, Refinery Waste: Hydroprocessing Catalyst Treatment and their Metal Recovery Processes, Keynote speaker at the World Congress on Chemistry held in Rome, Italy, 15-17th November 2018. (KISR 14785). | | | | | | |
|  | M. Marafi, **Mohan S. Rana**, Role of EDTA on Metal Removal from Refinery Waste Catalyst, Waste Management 2018; K**eynote speaker** at the Waste Management 2018, 9th International Conference on Waste Management and the Environment in Spain from 17-19th September 2018. (KISR 14784). | | | | | | |
|  | A Marafi, H. Albazzaz, **Mohan S. Rana**, Hydroprocessing of heavy residual oil: Opportunities and challenges, Presented in III Scientific-Technological Symposium Catalytic Hydroprocessing in Oil Refining STS HydroCat, 16-20 Apr 2018, Lyon, France (KISR 14855). | | | | | | |
|  | **Mohan S. Rana**, and Faisal S. AlHumaidan “Large Pore Hydrodemetallization Catalyst for Heavy Crude and Residue Oils” presented at ResidHydrotreat 2017: 1st International Symposium on Residue Hydrotreating, 6-8 November 2017, Kuwait. (KISR 14526). | | | | | | |
|  | M. Marafi, **Mohan S. Rana**, Refining Waste Spent Hydroprocessing Catalyst and Their Metal Recovery**,** presented in 19th International Conference on “Environment and Sustainable Development” Oct. 23-24, 2017, Bali, Indonesia. (KISR 13905). | | | | | | |
|  | M. Marafi, **Mohan S. Rana**, Process evaluation for optimization of Metal Recovery from Refining Spent Hydroprocessing Catalyst using EDTA**,** presented in2nd Green and Sustainable Chemistry Conference” May 14-17, 2017, Berlin, Germany. (KISR 13905). | | | | | | |
|  | M. Marafi, **Mohan S. Rana**, Refinery Waste: Spent Hydroprocessing Catalyst and its Recycling Options, presented in 8th International Conference on Waste Management and The Environment, held 7–9 June 2016, Valencia, Spain. (KISR 13287). | | | | | | |
|  | Sakeena H. AlSairafi, N.Al-Najdi, H. Al-Sheeha, Y. Al-Hunayyan, M.Y. Ahmad Hassan and **Mohan S. Rana**. Effect of Sol-Gel Preparation Method on the Alumina Support its Characterization and Supported Hydrotreating Catalysts. Presented at the 17th Kuwait Japan Joint Symposium Advancement in Petroleum Industries from 2-3rd February 2016. (KISR 13589) | | | | | | |
|  | **Mohan S. Rana**, Role of support and supported phases on hydroprocessing catalytic functionalities, presented at 3rd International Conference and Exhibition on Laboratory Technology (LABTECH 2014), October 28-30, 2014, Bahrain. (KISR 12155). | | | | | | |
|  | **Mohan S. Rana**, Role of catalyst Preparation and Support Composition on Hydrodesulfurization. Presented at the 16th Kuwait Japan Joint Symposium Kuwait, 13-14/1/2015. (KISR 12847). | | | | | | |
|  | M. Marafi, **Mohan S. Rana** and H. Al-Sheeha, Recovery of Valuable Metals and Recycling of Alumina from Waste Spent Hydroprocessing Catalyst: Extraction with Na Salts, presented at 7th International Conference on Waste Management and the Environment, held in Ancona, Italy from 12-14 May 2014. (KISR 11877). | | | | | | |
|  | M. Marafi, **Mohan S. Rana**, Recovery of Metals from Spent Hydroprocessing Catalyst Waste: Extraction with Ammonium Salt Solution, presented at 29th International Conference on Solid Waste Technology and Management, March 30-April 2, 2014 PA, USA. (KISR 11876). | | | | | | |
|  | H. Al-Sheeha, **Mohan S Rana**, M. Marafi, Spent hydroprocessing catalyst waste and its recycling options, presented in 3rd Kuwait Conference of Chemistry (KCC 2014), 9 - 11 March, 2014, Kuwait (KISR 12025). | | | | | | |
|  | **Mohan S. Rana**, Residue hydroprocessing catalyst and its deactivation by coke and metal deposition, presented in 3rd Kuwait Conference of Chemistry (KCC 2014), 9 - 11 March, 2014, Kuwait. (KISR 12024). | | | | | | |
|  | **Mohan S. Rana**, Influence of support and supported phases on catalytic functionalities of hydrotreating catalysts, presented in 15th Kuwait/Japan Joint Symposium: Advancement in Petroleum Refining Processes, 20-21, Jan. 2014, Kuwait. (KISR 11975). | | | | | | |
|  | **Mohan S. Rana**, J. Ancheyta, S.K. Sahoo, P. Rayo, Carbon and metal deposition during the hydroprocessing of Maya crude oil, presented in International Symposium on Advances in Hydroprocessing of Oil Fractions (ISAHOF), presented in June 9-14, 2013, Acapulco, Mexico. | | | | | | |
|  | **Mohan S. Rana**, Heavy (Residue) hydroprocessing and its deactivated catalyst characterization, presented in 14th Kuwait/Japan Joint Symposium: Advancement in Petroleum Refining Processes, 15-16, January 2013 Ahmadi, Kuwait. (KISR 12041). | | | | | | |
|  | A. Marafi, A. Stanislaus, **Mohan S. Rana**, Impact of Feedstock Quality On Clean Diesel Fuel Production, 9th International Colloquium Fuels - Conventional and Future Energy for Automobiles, 15 - 17 January 2013, Stuttgart / Ostfildern, Germany. (KISR 11372). | | | | | | |
|  | M. [Marafi, **Mohan**](http://www.scopus.com/authid/detail.url?origin=resultslist&authorId=6701703953&zone=) **S.** [**Rana**, R.](http://www.scopus.com/authid/detail.url?origin=resultslist&authorId=7006672842&zone=) [Navvamani, H.](http://www.scopus.com/authid/detail.url?origin=resultslist&authorId=55433717400&zone=) [Al-Sheeha](http://www.scopus.com/authid/detail.url?origin=resultslist&authorId=24474423500&zone=), [Utilization of waste spent hydroprocessing catalyst: Development of a process for full recovery of deposited metals and alumina support](http://www.scopus.com/record/display.url?eid=2-s2.0-84867911786&origin=resultslist&sort=plf-f&src=s&sid=kjcEjhsK4UzPW7yOareYG0l%3a190&sot=aut&sdt=a&sl=34&s=AU-ID%28%22Rana%2c+Mohan+S.%22+7006672842%29&relpos=0&relpos=0&searchTerm=AU-ID(\%22Rana,%20Mohan%20S.\%22%207006672842)), Waste Management, 2012, 6th International Conference on Waste Management and the Environment, 4 - 6 July 2012, New Forest, UK (KISR 11097) | | | | | | |
|  | **Mohan S. Rana**, J. Leglise, A study of inhibition effect by H2S and nitrogen compounds on activity of hydrotreating CoMo/Al2O3 catalyst, presented in 13th Kuwait/Japan Joint Symposium: Advancement in Petroleum Refining Processes, Ahmadi, Kuwait, 17-18, January 2012. (KISR 11002). | | | | | | |
|  | **Mohan S. Rana**, M. Marafi, An overview about the heavy, extra heavy crude oils and residue hydroprocessing limitations, presented in LabTech conference on 9-12 Oct. 2011 in Doha, Qatar, (KISR 10733) | | | | | | |
|  | A. Al-Barood, **Mohan S. Rana**, A. W. Al-Hendi, N. Mustafa, and K. V. Raghavan, Inhibiting effects of basic and non-basic nitrogen compounds on the Kuwaiti ultra low sulfur diesel (ULSD) hydrodesulfurization, presented in, International Symposium on Advances in Hydroprocessing of Oil Fractions (ISAHOF), held in June 12-17, 2011, Ixtapa, Mexico (KISR 10602). | | | | | | |
|  | **Mohan S. Rana**, A. Marafi and A. Stanislaus, Understanding the problem of asphaltene instability and its transformation during the hydroprocessing of heavy oils, presented in 12th Kuwait/Japan Joint Symposium: Advancement in Petroleum Refining Processes, Ahmadi, Kuwait, 18-19, January 2011 (KISR 10454). | | | | | | |
|  |  | | | | | | |
|  | F. Trejo, **Mohan S. Rana** and J. Ancheyta, E. M. Alvirde, Genesis of Acid−Base Support Properties with Variations of Preparation Conditions: Cumene Cracking and Its Kinetics, International Mexican Congress on Chemical Reaction Engineering, held June 6-10, 2010, pp-198-199; Ixtapa-Zihuantanejo, Guerrero, Mexico | | | | | | |
|  | P. Rayo, J. Ramírez, J. Ancheyta and **Mohan S. Rana,** Role of composite acidic supports containing Al2O3, SBA15 and HY zeolite in the hydrodesulfurization and hydrocracking of Maya crude with NiMo catalysts, presented International Symposium on Advances in Hydroprocessing of Oil Fractions (ISAHOF), Ixtapa, Guerrero, Mexico, **June 14-18,** **2009**. | | | | | | |
|  | G. Marroquín, J. Ancheyta, **Mohan S. Rana**, and J. A. I. Diaz, Fundamental Aspects of Sediment Formation during Heavy Oil Hydroprocessing - a review, presented International Symposium on Advances in Hydroprocessing of Oil Fractions (ISAHOF), Ixtapa, Guerrero, Mexico, June 14-18, **2009**. | | | | | | |
|  | C. Leyva, **Mohan S. Rana**, J. Ancheyta, An effect of support on the product selectivity of heavy oil hydroprocessing, presented in 14th ICC, July 13-18, 2008, COEX, Seoul, Korea. | | | | | | |
|  | **Mohan S. Rana**, S. K. Maity, Jorge Ancheyta, Effect of different alumina supports on heavy oil hydroprocessing and catalyst deactivation, presented, 14th ICC, July 13-18, 2008, COEX, Seoul, Korea. | | | | | | |
|  | E. M. Alvirde, **Mohan S. Rana**, F. Trejo and J. Ancheyta, Genesis of acid-base support properties with variation of preparation conditions: cumene hydrocracking and its kinetics, Mexican Congress on Chemical Reaction Engineering (MCCRE 2008), presented, Ixtapa, Guerrero, Mexico, **June 15-19, 2008.** | | | | | | |
|  | S. Chávez, F. Trejo, **Mohan S. Rana**, and J. Ancheyta, Nature of support and its effect on hydrodesulfurization of dibenzothiophene, Mexican Congress on Chemical Reaction Engineering (MCCRE 2008), presented, **I**xtapa, Guerrero, Mexico, **June 15-19, 2008.** | | | | | | |
|  | C. Leyva, **Mohan S. Rana,** Jorge Ancheyta, An effect of support on the product selectivity of heavy oil hydroprocessing, Mexican Congress on Chemical Reaction Engineering (MCCRE 2008), presented, Ixtapa, Guerrero, Mexico, **June 15-19, 2008.** | | | | | | |
|  | **Mohan S. Rana,** Jorge Ancheyta, S.K. Maity, P. Rayo, Effect of catalyst pore diameter on heavy oil hydroprocessing and its deactivation, Mexican Congress on Chemical Reaction Engineering (MCCRE 2008), presented, Ixtapa, Guerrero, Mexico, **June 15-19, 2008.** | | | | | | |
|  | P. Rayo, J. Ramírez, J. Ancheyta A. A.-Elguézabal, and **Mohan S. Rana,** Effect of hetero-atoms (Al, Ti, Zr and P) on the modification of SBA-15 and their function to hydrodesulfurization, Mexican Congress on Chemical Reaction Engineering (MCCRE 2008), presented, Ixtapa, Guerrero, Mexico, **June 15-19, 2008.** | | | | | | |
|  | A. Noyola, F. Trejo, J. Ancheyta and **Mohan S. Rana**, Kinetics of asphaltene hydrocracking in a batch reactor, Mexican Congress on Chemical Reaction Engineering (MCCRE 2008), presented, Ixtapa, Guerrero, Mexico, **June 15-19, 2008.** | | | | | | |
|  | Carolina Leyva, **Mohan S. Rana**, J. Ancheyta, Al2O3-SiO2 supported NiMo catalysts for Maya crude hydroprocessing, Presented in Molecular Structure of Heavy Oils and coal Liquefaction Products, 12-13 April 2007, IFP International Conference-Lyon, France. | | | | | | |
|  | Carolina Leyva, **Mohan S. Rana**, Jorge Ancheyta, Acidic supported NiMo catalysts for heavy oil hydroprocessing, Presented in 18th Nationalal Symposium & Indo-US Seminar on Catalysis, April 16-18, 2007, Indian Institute of Petroleum, India. | | | | | | |
|  | **Mohan S. Rana**, J. Ancheyta, S. K. Maity and P. Rayo, Maya heavy crude oil hydroprocessing: A zeolite based CoMo catalysts and its spent catalyst characterization, presented in International Symposium on Advances in Hydroprocessing of Oil Fractions (ISAHOF), Morelia, México, June 26-29, **2007**. | | | | | | |
|  | P. Rayo, **Mohan S. Rana**, J. Ramírez, J. Ancheyta, and A. A.-Elguézabal, Effect of the preparation method on the structural stability and hydrodesulfurization activity of NiMo/SBA-15 catalysts, presented in International Symposium on Advances in Hydroprocessing of Oil Fractions (ISAHOF), Morelia, México, June 26-29, **2007**. | | | | | | |
|  | R. S.-Rodrigo, F. H.-López, K.M. Juarez, A.C. Mares, J.A. M. Banda, A.O. Sarabia, J.Ancheyta, **M. S. Rana**, Synthesis, characterization and catalytic properties of NiMo/Al2O3-MCM-41 catalyst for dibenzothiophene hydrodesulfurization, presented in International Symposium on Advances in Hydroprocessing of Oil Fractions (ISAHOF), Morelia, México, June 26-29, **2007**. | | | | | | |
|  | F. Trejo, **Mohan S. Rana**and J. Ancheyta, CoMo/MgO-Al2O3 supported catalysts: An alternative approach to prepare HDS catalysts, presented in International Symposium on Advances in Hydroprocessing of Oil Fractions (ISAHOF), Morelia, México, June 26-29, **2007**. | | | | | | |
|  | C. Leyva, **Mohan S. Rana**, Jorge Ancheyta, Surface characterization of Al2O3-SiO2 supported NiMo catalysts: an effect of support composition, presented in International Symposium on Advances in Hydroprocessing of Oil Fractions (ISAHOF), Morelia, México, June 26-29, **2007**. | | | | | | |
|  | Samir K. Maity, G. A. Flores, J. Ancheyta, **Mohan S. Rana**, Effect of preparation methods and content of phosphorous on hydrotreating activity, presented in International Symposium on Advances in Hydroprocessing of Oil Fractions (ISAHOF), Morelia, México, June 26-29, **2007**. | | | | | | |
|  | E. M. Ramírez, **Mohan S. Rana**, J. Ancheyta, Effect of catalyst preparation and support composition on hydrodesulfurization of dibenzothiophene presented at the Mexican Congress on Chemical Reaction Engineering (MCCRE 2006), held in Mexico City, Mexico on April 19-21, **2006**. | | | | | | |
|  | **Mohan S. Rana**, J. Ancheyta, P. Rayo, S.K. Maity, Inhibition effect by added H2S on heavy oil hydroprocessing over CoMo/Al2O3 catalyst, presented at the Mexican Congress on Chemical Reaction Engineering (MCCRE 2006), held in Mexico City, Mexico on April 19-21, **2006**. | | | | | | |
|  | S. K. Maity, V. H. Pérez, J. Ancheyta, **Mohan S. Rana**, G. Centeno, Deactivation of Maya crude hydrotreating catalyst-Effect of asphaltene contained in feed, presented at the Mexican Congress on Chemical Reaction Engineering (MCCRE 2006), held in Mexico City, Mexico on April 19-21, **2006**. | | | | | | |
|  | C. Leyva, J. Ancheyta, **Mohan S. Rana**, An Easy Approach to Estimate Kinetic Parameters in HDS of DBT Reaction, 17th International Congress of Chemical and Process Engineering, held on 27-31 August **2006**, Prague- Czech Republic (CHISA 2006). | | | | | | |
|  | Carolina Leyva, Jorge Ancheyta, **Mohan S. Rana**, Gustavo Marroquín, A comparative study on the effect of promoter content of hydrodesulfurization catalysts at different evaluation scales, presented at the Mexican Congress on Chemical Reaction Engineering (MCCRE 2006), held in Mexico City, Mexico on April 19-21, **2006**. p-109-110 | | | | | | |
|  | S. K. Maity, V. H. Pérez, J. Ancheyta, **Mohan S. Rana**, G. Centeno, Study of catalyst deactivation during hydrotreating of Maya crude in a batch reactor, presented at the Mexican Congress on Chemical Reaction Engineering (MCCRE 2006), held in Mexico City, Mexico on April 19-21, **2006**. pp-115 | | | | | | |
|  | Vicente Sámano, **Mohan S. Rana**, Jorge Ancheyta, José A.I.Díaz, A review of recent advances on process technologies for upgrading of heavy oils, presented at the Mexican Congress on Chemical Reaction Engineering (MCCRE 2006), held in Mexico City, Mexico on April 19-21, **2006**, p-117. | | | | | | |
|  | **Mohan S. Rana**, J. Ancheyta and S. K. Maity, Maya crude hydrodemetallization catalyst and its characteristics, AchemAmerica 2005 International conference on “*Novel Processes for Refining and Petrochemicals*” 12-15 April **2005**, Mexico D.F. Mexico. | | | | | | |
|  | S. K. Maity, F. Alonso, J. Ancheyta, **Mohan S. Rana,** Catalizador para Hidroprocesamiento de Crudo Maya- Correlaciones Fisicoquímicas, IX Congreso Mexicano de Catálisis, Octubre 4 al 7 de 2005, Tampico, Cd. Madero , México. | | | | | | |
|  | **Mohan S, Rana**, J Ancheyta, S. K. Maity , P. Rayo, Efecto del soporte y el diámetro de poro en la hidrodemetalización de crudo maya, IX Congreso Mexicano de Catálisis, Octubre 4 al 7 de **2005**, Tampico, Cd. Madero, México. | | | | | | |
|  | **Mohan S. Rana**, J. Ancheyta, P. Rayo and S. K Maity, Surface characterization of spent hydrotreating catalysts using Maya crude as a feed, 3rd San Luis Symposium on surface, Interfaces and Catalysis, Marida-Venezuela 15-19 March, **2004**. | | | | | | |
|  | **Mohan S. RANA**, R. Navarro and J. Leglise, [Competitive effects of nitrogen and sulfur content on activity of hydrotreating CoMo/Al2O3 catalysts: a batch reactor study](file:///F:\Oral\Paper%204.2.doc), presented in International Symposium on Advances in Hydroprocessing of Oil Fractions Oaxaca, México, April 18-22, **2004**. | | | | | | |
|  | **Mohan S. Rana**, J. Ancheyta, P. Rayo and S. K Maity, Effect of alumina preparation on HDM and HDS of Maya Crude, presented in International Symposium on Advances in Hydroprocessing of Oil Fractions Oaxaca, México, April 18-22, **2004**. | | | | | | |
|  | S. K. Maity, J. Ancheyta, F. Alonso and **Mohan S. Rana**, [Preparation, characterization and evaluation of Maya crude hydrotreating catalysts](file:///F:\Oral\Paper%204.5.doc), presented in International Symposium on Advances in Hydroprocessing of Oil Fractions Oaxaca, México, April 18-22, **2004**. | | | | | | |
|  | B. Caloch, **Mohan S. Rana** and J. Ancheyta, [Improved Hydrogenolysis (C-S) Function with basic supported hydrodesulfurization catalysts,](file:///F:\Posters\Poster%2014.doc) presented in International Symposium on Advances in Hydroprocessing of Oil Fractions Oaxaca, México, April 18-22, **2004**. | | | | | | |
|  | **Mohan S. Rana**, M. L. Huidobro, L. Fragoza, S.K. Maity and J. Ancheyta, [Effect of chelating agent and preparation conditions on HDS reaction,](file:///F:\Posters\Poster%2041.doc) presented in International Symposium on Advances in Hydroprocessing of Oil Fractions Oaxaca, México, April 18-22, **2004**. | | | | | | |
|  | **Mohan S. RANA**,T. Honma, M. Echard,and J. Leglise, A combined catalytic and gravimetric study on an CoMo/γ-Al2O3 catalyst: H2S effects on gas-oil HDS and on conversion of model molecules, Presented in 13th International Congress on Catalysis, Paris-France, 11-16 July, **2004**. | | | | | | |
|  | **Mohan S. Rana**, J. Ancheyta, S. K. Maity and P. Rayo, Characteristics of Maya crude hydrodemetallization and hydrodesulfurization catalysts, presented in Division of Fuel Chemistry, 228th ACS National Meeting, Philadelphia, PA, August 22-26, **2004,** USA. | | | | | | |
|  | M. L. Huidobro, **Mohan S. Rana** y J. Ancheyta, Efecto de la Naturaleza del Soporte en la Hidrogenólisis de Tiofeno, XIX Simposio Iberoamericano de Catálisis, Septiembre 5-11, **2004**, Mérida-Yucatán, México. | | | | | | |
|  | **M. S. Rana**, S. K. Maity, J. Ancheyta, G. Murali Dhar and T. S. R. Prasada Rao, Co(Ni) Mo supported TiO2-SiO2 hydrotreating catalysts: physico-chemical characterization and activities, Presented in 18th North American Catalysis Meeting, June, **2003**, Cancun, Mexico | | | | | | |
|  | **Mohan S. Rana,** J. Leglise, R. Navaro and M. Echard, A Study of Inhibitive Effect by H2S on Activity of Hydrotreating CoMo/Al2O3 Catalysts: Relationship between Catalytic Activity and Amount of Adsorbed H2S Species, Presented at French National Congress on Catalysis, Ousawa, May, **2002**, France. | | | | | | |
|  | **Mohan S. Rana,** S. K. Maity, B. N. Srinivas, G. Murali Dhar, and T. S. R. Prasada Rao, Studies of Characterization and Catalytic Functionalities on TiO2-SiO2 Supported Mo Hydrotreating Catalysts,presented *IPCAT-2,* National Chemical Lab, Pune, Jan. **2001,** India*.* | | | | | | |
|  | K. S. Rawat, **Mohan S. Rana** and G. Murali Dhar, Fundamental Characteristic of USY Zeolite Supported Hydrotreating Catalysts, Presented in “*Petrotech”* held at New Delhi, 2001, India. | | | | | | |
|  | **Mohan S. Rana**, S. K. Maity**,** B. N. Srinivas**,** S. S. Ray*,* G. Murali Dhar and T. S. R. Prasada Rao, Structural Characterization of ZrO2-SiO2 Mixed Oxides by 29Si MAS NMR, Presented in 5th National Symposium/Workshop on Magnetic Resonance (NMR), Feb. 23-26, **1999**, IIP Dehradun, India. | | | | | | |
|  | B. N. Srinivas*,*S. K. Maity, **M. S. Rana**, G. Murali Dhar and T.S.R. Prasada Rao, Catalytic functionalities of MoS2/TiO2-Al2O3 Catalysts, Presented in *IPCAT-1* Cape Town, **1998***,* South Africa*.* | | | | | | |
|  | T. Chiranjeevi, P. Kumar, **M. S. Rana**, B. N. Srinivas, M. Kumar*,* G. Murali Dhar and T. S. R. Prasada Rao, MCM-41 as a Novel Support for Hydrotreating Catalysts, Presented in 14th National Symposium on Catalysis, Dec. 16-18, **1998,** Anaa University, Chennai, India. | | | | | | |
|  | **M. S. Rana**, S. K. Maity, B. N. Srinivas, G. Murali Dhar, and T.S.R. Prasada Rao, Applications of Temperature Programmed Desorption (TPD) Technique in Characterizing Hydroprocessing Catalysts, Presented in Symposium on *Recent trends in Instrumental Method of Analysis*, **1997**, Roorkee University, India. | | | | | | |
|  | S.K. Maity, R. N. Goal, B. N. Srinivas, **M. S. Rana**, G. Murali Dhar and T.S.R. Prasada Rao, Instrumental Techniques to characterize and evaluate hydrotreating catalysts, Presented in symposium on *Recent Trends in Instrumental Methods of Analysis*, **1997,** Roorkee University, Roorkee, India. | | | | | | |
|  | B.N.Srinivas, S. K. Maity, **M. S. Rana**, G. Murali Dhar and T.S.R. Prasada Rao, Application of analytical spectroscopy techniques in characterization and evaluation of hydrotreating catalysts used in petroleum refining, Presented in symposium on *Recent Trends in Instrumental Methods of Analysis*, Roorkee University, Roorkee, India, **1997**. | | | | | | |
|  | **M. S. Rana**, A. Mishra, B. N.Srinivas, S. K.Maity, J. K.Gupta, G. Murali Dhar and T.S.R. Prasada Rao, Characterization and Catalysis by TiO2-SiO2 and ZrO2-SiO2 Mixed Oxides, Presented in *National Workshop on Catalysis*, RRL, Trivandrum, Dec.11-13, **1997**, India. | | | | | | |
|  | S. K.Maity, B. N.Srinivas*,* **M. S. Rana**, G. Murali Dhar and T.S.R. Prasada Rao, Low Temperature Oxygen Chemisorption Studies on Hydrotreating Catalysts and Correlation with Catalytic Activities, Presented in *National Workshop on Catalysis*, RRL, Trivandrum, Dec.11-13, **1997** India. | | | | | | |
|  | B. N. Srinivas, S. K. Maity*,* **M. S. Rana**, G. Murali Dhar and T.S.R Prasada Rao,Studies on Tungsten based hydrotreating catalysts supported on binary oxides, Presented in *National Workshop on Catalysis*, RRL, Trivandrum, Dec.11-13, **1997** India. | | | | | | |
|  | **International Congresses:** | | | | | | |
|  | * **Chair a session:** ISAHOF 2019 * **Chair a session:** Kuwait Japan * **Chair a session:** KCC * **Chair a session:** **“***Residue Oil Hydroprocessing***”** in International Symposium on Advances in Hydroprocessing of Oil Fractions (ISAHOF), Morelia, México, June 27, **2007** * **Chair a session:** **“***HDS of Model Compounds***”** in International Symposium on Advances in Hydroprocessing of Oil Fractions (ISAHOF), Morelia, México, June 29, **2007.** * **Chair a session:** *“Miscellaneous”*in International Symposium on Advances in Hydroprocessing of Oil Fractions (ISAHOF), Morelia, México, April 22, **2004**. | | | | | | |
|  | **Final Reports (Completed Projects)** | | | | | | |
|  | PF053K: **Mohan S. Singh**, M. Marafi, F. AlHumaidan, K. AlDalama, H. AlSheeha. **2014.** Catalyst Development for Mild Hydrocracking of Residual Oil to Enhance Middle Distillate Yield. Final Report submitted to KISR (KISR 12373) | | | | | | |
|  | PF056C: **Mohan S. Rana**, F. Al-Humaidan, R. Navvamani and R. Bouresli, **2016**. Development of Carbon Supported Hydrometallization Catalyst for Kuwaiti Heavy Crude Oil, Final Report to KFAS & KISR (KISR 13435), | | | | | | |
|  | PF058K: F. AlHumaidan, A. Hauser, **Mohan S. Rana,** H. Lababidi, **2014**.Asphaltene Chemical Transformation during the Thermal Cracking of Residual Oils - Final Report submitted KISR (KISR 12258) | | | | | | |
|  | PF074K: F. AlHumaidan, **Mohan S. Rana,** N. Tanoli, H. Lababidi. **2014**. Impact of thermal cracking on asphaltene structure and morphology, Final Report submitted KISR (KISR14012). | | | | | | |
|  | PF085K: M. Vinoba, R. Navvamani, **Mohan S. Rana**, H. Al-Sheeha, S. Al-Sairafi, N. Al-Najdi, **2018**. Synthesis of Mxene Supported MoS2 Catalyst for Hydrodesulfurization, Final Report submitted KISR (KISR 15150). | | | | | | |
|  | PF080K: H. Al-Rabiah, **Mohan S Rana**, L. Al-Ostad, A. Abumlloh, H. Al-Henayyan, M. Sabti, **2019**. Group Type Characterization of Kuwaiti Atmospheric Residue using New SARA Methodology, Final Report submitted KISR (KISR 15625) | | | | | | |
|  | PF083C: **Mohan S. Rana,** R. Navvamani, S. Antoni, H. Sheeha, S. Jose, H. Albazzaz, **2020**. Impact of Hydroprocessing Catalyst Properties and Compositions on Asphaltene Precipitation and Deposition. Final Report to KFAS & KISR (KISR 16044) | | | | | | |
|  | PF100K: M. Al-Samhan, J. Al-Fadhli, **Mohan S. Rana,** A. Al-Otaibi, F. Al-Attar, R. Bouresli, **2021.** Investigation of Catalytic Cracking for Direct Production of Olefins from Heavy Crude Oil, Final Report submitted KISR (KISR under process), on Sept. 23, **2021**. | | | | | | |
|  | **Technical Report/ Progress Report** | | | | | | |
|  | PF1099K: H. AlSheeha, A. Pathak, R. Navvamani, and **Mohan S. Rana**, Nobel metal recovery from spent catalyst,KISR Annual Progress Report No. 1 (**KISR 16818**), Sept. 2021. | | | | | | |
|  | PF083C: **Mohan S Rana**, R. Navvamani, S. Jose, H. Sheeha, H. Bazzaz, **2019**. Impact of Hydroprocessing Catalyst Properties and Compositions on Asphaltene Deposition, KISR Annual Progress Report No. 1 (**KISR 15519**), May 2019. | | | | | | |
|  | PF056C: **Mohan Singh**, R. Navvamani; H. Al Sheeha; S. Al-Sairafi; R. Bouresily; and F. Al Humaidan. **2015**. Development of carbon supported hydrodemetallization catalyst for Kuwait heavy crude oil, KISR Annual Progress Report No. 2 (**KISR 13043**), Oct. 2015 | | | | | | |
|  | PF056C: F. Al-Humaidan, **Mohan Singh**, and R. Navvamani, **2014**. Characterization of support and supported hydroprocessing catalysts, KISR Annual Progress Report No. 1 (**KISR 12411)**, Oct., 2014. | | | | | | |
|  | PF056C: **Mohan Singh**, **2014**. Development of carbon supported hydrodemetallization catalyst for Kuwait heavy crude oil, KISR Progress Report No. 2 (**KISR 12064**), March 2014. | | | | | | |
|  | PF053K: **Mohan Singh,** and M. Marafi, **2011**. Procurements of material for development of residue hydrocracking catalysts, KISR Progress Report No. 1 (**KISR 10938)**, December 2011 | | | | | | |
|  | PF053K: **Mohan Singh** and K. Al.-Dalama. **2012**. Preparation of support and catalyst for residue mild hydrocracking, KISR Progress Report No. 2 (**KISR 11112)**, March 2012 | | | | | | |
|  | PF053K: **Mohan Singh,** A. Barood, and F. Al-Humaidan, **2013**. Design and installation of atmospheric glass reactor for evaluating hydroprocessing catalyst with model compounds, KISR Progress Report No. 3 (**KISR 11509)**, Feb. 2013 | | | | | | |
|  | PF053K: **Mohan Singh**, Characterization of support and supported hydroprocessing catalysts, KISR Progress Report No. 4 (**KISR 12062**), August 2013 | | | | | | |
|  | PF053K: F. Al-Humaidan, **Mohan Singh** and A. Barood. **2013.** Evaluating Mild hydrocracking activity of residue hydroprocessing catalyst. KISR Progress Report No. 5 (**KISR 11885)**, Sept. 2013 | | | | | | |
|  | **Proposals Written** | | | | | | |
|  | PF 053K: **Mohan S. Rana** and M. Marafi Catalyst Development for Mild Hydrocracking of Residual Oil to Enhance Middle Distillate Yield, KISR No 10836, **Sept. 2011.** | | | | | | |
|  | PF 056C: **Mohan S. Rana,** Development of Carbon Supported Hydrodemetallization Catalyst for Kuwaiti Heavy Crude Oil, KISR No: 11195**, Sept. 2014** | | | | | | |
|  | PF 083C: **Mohan S. Rana,** Impact of Hydroprocessing Catalyst Properties and Compositions on Asphaltene Deposition, KISR No: 14962, **April 2018.** | | | | | | |
|  | PF105K: Vinoba Mari, Narjes A. Ghaloum, **Mohan S Rana**, Electrochemical Conversion of CO2 into C2+ Products, KISR No: 16386, Feb. **2021.** | | | | | | |
|  | PF106K: **Mohan S Rana**, Synthesizing dispersed catalyst for hydroprocessing of heavy oil and residue, KISR No 16444, March **2021**. | | | | | | |
|  | **Book Editor**  Dr. Mohan Rana, member of KISR Annual Scientific Report Review Committee | | | | | | |
|  | KISR Scientific Report **2013-2014** “KISR Transformation”, edt. by Housam AlOmirah, F. Taha, A. Ghosn, N. Bhat, N. Burney, M. Beg, F. Al Ragom, J. Ali, **Mohan Singh**, A. Muhkopadhyay, N. Al Shammari, M. AlAswad, A. AlNouri, ISBN: 978-99966-37-16-2. | | | | | | |
|  | KISR Scientific Report **2011-2013** “KISR Scientific Report”, edt. by Housam AlOmirah, A. Ghosn, F. Taha, N. Bhat, N. Burney, M. Beg, F. Al Ragom, Shawqi Lahaleih, **Mohan Singh**, A. Muhkopadhyay, N. Al Shammari, Hanaa Najjar, ISBN: 978-99966-37-11-7. | | | | | | |
|  | KISR Scientific Report **2009-2010**. edt. by N. Al-Awadi, A. Ghosn, M. Beg, B. Al-Feelli, A. Muhkopadhyay, **Mohan Singh,** N. R. Bhat, N. Burney, A. Al-Nouri, F. Al-Qattan, ISBN: 978-99966-37-018. | | | | | | |
|  | **National/International Conference Organization**  **(Participated as member International Scientific Organizing Committee)** | | | | | | |
|  | * Member of KCC organizing Conference 2014, 2018, 2020 * International Symposium on Advances in Hydroprocessing of Oil Fractions (ISAHOF), organized by IMP, Mexico, in following years 2007, **2009, 2011, 2013, 2015, 2017, and 2019.** * Mexican Congress on Chemical Reaction Engineering (MCCRE), organized by IMP, Mexico, in following years, 2006, 2008, **2010, 2012, 2014; 2016; 2018.** * The IV Scientific-Technological Symposium Catalytic Hydroprocessing in Oil Refining (STS HydroCat – 2021), Russia, April 26-30, **2021** (Virtual) * 2nd International Conference on Oil, Gas and Coal Technology (ICOGCT 2021) held in July 15, **2021** | | | | | | |
|  | **Member of International Reviewing Projects** | | | | | | |
|  | * International Member of Reviewing Proposal for **CONACyt, Mexico,** (reviewed 5 proposals in 2019). * International Member of Reviewing Proposal for Russian institutions of higher learning to the Ministry of Education and Science of the Russian Federation, Russia**,** since **2019.** | | | | | | |
|  |  | | | | | | |
|  | **Teaching Experiences and Course given for KNPC/KOC and KCC engineers** | | | | | | |
|  | **Course title** | | **Years** | | | | **Country** |
| 1 | Clean Fuel Process and Technologies | | 2009, 2011, 2013, 2014, 2015, 2016, 2017, 2018 | | | | KISR, Kuwait |
| 2 | Options for upgrading residue and heavy oils | | 2009, 2011 | | | | KISR, Kuwait |
| 3 | Petroleum Classification, Evaluation, and Refining Process | | 2009, 2014, 2021 | | | | KISR, Kuwait |
| 4 | Fuel Specification and Test Method | | 2014, 2018 | | | | Bahrain & Kuwait |
|  | **Editorial Board:** | | | | | | |
|  | Since 2008, Dr Mohan is in Editorial board of peer reviewed professional Journal. [***International Journal of Oil, Gas and Coal Technology***](http://www.inderscience.com/ospeers/admin/editor/accepted.php?jid=242&jeID=13354&listos=54) *(IJOGCT)* published by Inderscience Enterprises Ltd., UK, which as Q3 rank (Quartile) in Energy sector, about 0.955 impact factor and having h-index-18. | | | | | | |
|  | **Guest Editor:** Catalysis Today: Jorge Ancheyta, **Mohan S. Rana** and Edward Furimsky, Edited a special issue of “Hydroprocessing of Heavy Oil Fractions” Volume 109 (**2005**). | | | | | | |
|  | **Peer Reviewing Board** | | | | | | |
|  | *Journal Catalysis, Applied Catalysis, J. Molecular Catalysis A: Chem., Catalysis Today, Fuel, Energy and Fuel, Catalysis Letter, Fuel Processing Technology, Chemical Engineering Journal, Chemical Engineering Communications, Catalysis Review Science & Engineering,* *Petroleum Science and Technology, etc.* | | | | | | |
|  | **Thesis supervised, and examiner:** | | | | | | |
|  | **Grade, Exam date** | **University** | | **Position** | | **Student Name** | |
|  | BS, March 2002, | l'Université de Caen Basse-Normandie, France | | Co-supervisor | | S. Virginia | |
|  | BS, 04/11/2003 | IPN, Escuela Superior de Ing. Química E Industrias, Mexico | | Supervisor | | Beatriz Caloch Mendieta | |
|  | BS, 14/03/2005 | UNITEC, México | | Supervisor | | Ma. de la Luz Huidobro Galve | |
|  | BS, 24/06/2006 | IPN, Escuela Superior de Ing. Química E Industrias, Mexico | | Supervisor | | Elsa Maria Ramirez Capitaine | |
|  | BS,: 20/06/2006 | ITO, Oaxaca, Oaxaca, Mexico | | Supervisor | | E. Ana Laura Rueda Jarquin | |
|  | BS,: 09/06/2008 | IPN, Escuela Superior de Ing. Química E Industrias, Mexico | | Supervisor | | Edgar Miguel Alvirde Hernandez | |
|  | BS,: 09/06/2008 | IPN, Escuela Superior de Ing. Química E Industrias, Mexico | | Supervisor | | Sergio Chavez Cruz | |
|  | PhD | División de Ciencias Básicas e Ingeniería, UAM, Mexico | | 1st Vocal | | Efraín Altamirano Sánchez | |
|  | PhD | Ing. Química, UNAM, Mexico | | 2nd Vocal | | Fernando Trejo Zárraga | |
|  |  |  | |  | |  | |
|  | **Profile Highlights:** | | | | | | |
|  | * About 25 years of R&D experience in academia and various research institutions. * Over 8 years of industrial R&D experience with emphasis on hydroprocessing catalyst development for major Petroleum Refinery stream. * Over 12 years of experience in industrial R&D Project Leadership. * Over 12 years of experience in process development from laboratory to plant. * Over 10 years of experience in managing and leading research projects. * Several years of experience in supervising, mentoring, and guiding Science and Engineering graduates in laboratory * About 20 years of experience in the synthesis, characterization, and evaluation of various types of inorganic materials such as inorganic oxides, supported base and active metals, metal oxides, zeolites, mesoporous (MCMs/SBA-15), and nanostructured materials as well as composites for catalytic applications. * Extensive hands-on experience in various industrial reactions (HDS, HDN,HYD,HDM, HDAs), reactor design, and atmospheric reactor fabrication * Extensive hands-on experience in various characterization and analytical techniques (in-situ FTIR, HRTEM, Raman, SEM, GC/GC-MS, TGA/DSC, TPR/TPD/TPO/TPS, BET, Chemisorption, ICP-AES, XRD, XRF) used for catalyst characterization. * Extensive experience and expertise in international publications, presentations and Intellectual Property protection and Patents. * Excellent written communication skills and effective team player | | | | | | |
|  | **Collaboration with research groups:**  Canada, France, USA, UNAM-Mexico, IMP/IPN-Mexico, Kuwait University | | | | | | |
|  | **Membership:**   * ACS membership (number: 30546530), USA * Catalysis Society of India, India * Life membership, Science Internationa Forum (SIF), Vijnan Bhart (VIBHA), India | | | | | | |
| **Mohan Singh RANA** | | | | | **24/02/2022** | | | |