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PREFACE

Word Summit "Catalysis Engineering & Technology" (CatET-2019)

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The Word Summit "Catalysis Engineering & Technology" (CatET-2019) was organized byResearch Fringe LLC (United Kingdom), and took place in Valencia (Spain) on November 12–13, 2019. It was the first edition of a congress aiming at bringing together scientists, researchers, industrial engineers, and university students from different parts of the world, to give them the opportunity to present their research achievements in the field of applied catalysis, share and refine ideas, and develop new collaborations. CatET-2019 consisted of 33 presentations (4 keynotes, 24 oral communications, and 5 posters), which were split into 5 plenary sessions. Participants were from 14 countries: Bulgaria, China, France, Germany, India, Israel, Italy, Korea, Morocco, Russia, Saudi Arabia, Spain, Switzerland, and the USA.

This Special Issue of Topics in Catalysis contains a selection of contributions from the participants in CatET-2019. The selected articles [1–9], which went through a rigorous peer-review process, represent the most interesting topics addressed at the congress.

Gold catalysts are the protagonists of articles [1–3]. Gold nanoparticles supported on C and N co-decorated alumina [1] and on Ce–Zr oxides [2] were investigated for selective hydrogenation of acetylene, and polyaniline microtubes have been proposed as a support for gold nanoparticles to improve the catalytic performance in reduction of nitrophenols [3].

Optimization of supports in bifunctional supported Pt catalysts for hydrocracking of polystyrene to liquid fuels is the subject of the work by González-Marcos et al. [4].

The focus of articles [5–7] is on catalytic combustion. Singh et al. [5] investigated transition metal (Ni, Cu or Fe)-substituted Co_3O_4–ZrO_2 catalysts for lean methane combustion. In article [6], synergy between ceria and metals (Ag or Cu) was explored for soot combustion during regeneration of catalytic diesel particulate filters (DPFs). Landi et al. [7] carried out a numerical investigation of the combined effects of initial temperature and catalyst activity on the dynamics of soot combustion in catalytic DPFs. Their results pave the way for the passage to a continuous functioning mode for such devices, with regeneration taking place simultaneously, and not alternately, to filtration at the conditions of the exhaust gases fed to the filter.

Kanhounnon et al. [8] demonstrated, through density functional theory calculations, the importance of the presence of a catalyst to an efficient purification of fuels via elimination of thiophenic compounds by cycloaddition with ethylene.

The work by Jayanthi et al. [9] provides new insights into the photocatalytic performance of TiO_2 prepared by thermal processing of organic–inorganic hybrid thin films deposited by molecular layer deposition, highlighting the key role played by strain effects in affecting the electronic structure of the catalyst.

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Due to the Covid-19 pandemic, the second edition of the Word Summit "Catalysis Engineering & Technology", initially scheduled for October 5–6, 2020 in Brussels (Belgium), has been postponed. The new dates are expected to be announced soon.

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References

1. Zhang Y, Sun X, Zhao Y, Su H, Murayama T, Qi C (2020) C, N co-decorated alumina-supported Au nanoparticles: Enhanced catalytic performance for selective hydrogenation of acetylene. Top Catal. https://doi.org/10.1007/s11244-020-01378-w
2. Hua X, Zheng Y, Yang Z, Sun L, Su H, Murayama T, Qi C (2020) Gold nanoparticles supported on Ce–Zr oxides for selective hydrogenation of acetylene. Top Catal. https://doi.org/10.1007/s11244-020-01379-9
3. Sun L, Jiang L, Zhang J, Murayama T, Zhang M, Zheng Y, Su H, Qi C (2020) Preparation of polyaniline microtubes as the gold catalyst support with improved catalytic performances for the reduction of nitrophenols. Top Catal. https://doi.org/10.1007/s11244-020-01385-x
4. González-Marcos MP, Fuentes-Ordóñez EG, Salbidegoitia JA, González-Velasco JR (2020) Optimization of supports in bifunctional supported Pt catalysts for polystyrene hydrocracking to liquid fuels. Top Catal. https://doi.org/10.1007/s11244-020-01393-x
5. Singh SA, Madras G, Sreedhar I (2020) Transition metal (Ni, Cu and Fe) substituted Co_3O_4-ZrO_2 catalysts for lean methane combustion. Top Catal. https://doi.org/10.1007/s11244-020-01382-0
6. Di Sarli V, Landi G, Di Benedetto A, Lisi L (2020) Synergy between ceria and metals (Ag or Cu) in catalytic diesel particulate filters: effect of the metal content and of the preparation method on the regeneration performance. Top Catal. https://doi.org/10.1007/s11244-020-01384-y
7. Landi G, Di Sarli V, Lisi L (2020) A numerical investigation of the combined effects of initial temperature and catalyst activity on the dynamics of soot combustion in a catalytic diesel particulate filter. Top Catal. https://doi.org/10.1007/s11244-020-01386-w
8. Kanhounnon WG, Richard F, Kpotin GA, Koudjina S, Kuevi UA, Atohoun GS, Badawi M (2020) Elimination of thiophenic compounds by cycloaddition with ethylene for an efficient purification of fuels: a DFT study. Top Catal. https://doi.org/10.1007/s11244-020-01377-x
9. Jayanthi S, Sarkar D, Taffa DH, Yerushalmi R (2020) Photoreactivity of deep VB titania attained via molecular layer deposition; interplay of metal oxide thin film built-in strain and molecular effects. Top Catal. https://doi.org/10.1007/s11244-020-01390-0

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