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Sustainable processing of biomass and its derivatives

Lignocellulosic biomass from agricultural and forest residues ¾which does not compete with land use for other crops or for food production¾ is presented as an alternative for fuels and/or chemicals production, thus reducing our fossil fuels dependence. Nowadays, the processes of transformation of renewable raw materials (i.e. vegetal biomass) for the production of hydrocarbons and other chemical products are, in general, more expensive than the conventional processes, making the valorization processes for the biomass and the obtained bio-products not competitive with their analogues derived from petroleum. For this reason, a major challenge for chemists is to try to develop new (chemo-, bio-, combined systems) catalytic routes to convert biomass and its derivatives into fuels and chemicals through sustainable and economically viable processes in bio-refineries.

In this context, and aligned with the new bio-economy and zero-waste concepts, the new bio-refineries should produce these bio-products for fuels and chemicals applications by reducing wastes, this including both decreasing of side-products formation and residual effluents valorization in an integrated approach.

The workshop will be addressed to scientists, experts and students participating in the congress from both industry and academia whose are active in the area of biomass valorization via thermo-chemical and biological processes. Emphasis will be placed on the utilization of lignocellulosic biomass (including non-edible crops or low quality oils), which do not compete with food. In terms of conversion processes, the use of green catalytic methodologies (mainly heterogeneous catalysis) will be discussed. Moreover, alternative biomass-based products that are safer and have a reduced environmental footprint will be discussed, along with the integrated bio-refinery and energy conservation concepts. The issue of "metrics" in assessing the economic and environmental impact of biomass conversion to various products will also be considered.

Biography

Marcelo E. Domine completed his PhD at the Polytechnic University of Valencia (Spain) in 2003 under the guidance of Prof. A. Corma, and postdoctoral studies at the IRCELYON - CNRS (France, 2005-07). In 2008, he re-joined the Instituto de Tecnología Química (UPV-CSIC) of Valencia, Spain as Scientific Researcher of CSIC. His current research involves the synthesis and characterization of solid catalysts and their application in sustainable chemical processes, mainly focusing on new bio-mass-derivatives transformations and wastes valorization into fuels and valuable chemicals. He is co-author of more than 55 publications (also including several patent applications). He has presented over 18 invited conferences around the world. He has acted as Guest Managing Editor of Catalysis Today, and also as Reviewer in many renowned scientific journals in catalysis and fuels areas. He is actually the representative of CSIC (Spain) at the EERA Program – JP-Bioenergy (European Commission).

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