

FROM WASTE WATER SLUDGE TO VALUABLE CHEMICALS AND CLEANER FUELS

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Abstract

Wastewater sludge is regarded as interesting source of biogas resulting from anaerobic treatment. The biogas composition, particularly, with respect to CH₄ and CO₂, depends on the sludge variability regarding several parameters such moisture content, especially, temperature and alkalinity. Thus, biogas is mainly used for onsite production of heat and electricity needed for operating the waste water plan, because of the significant costs associated with transporting and incinerating of wastewater sludge offsite. However, in the actual context of global warming there is an important need for innovation in technology solutions promoting low carbon emissions. This paves the way

to new research area with cross-cutting applicability relevant to chemical-to-chemical reactions and chemical to-power processes. Of interest, the syngas production from biogas through methane reforming with CO₂ and further transformation to valuable chemicals and cleaner energy precursors.

At this regard the presentation reviews an engineering journey for development at lab. Scale of of non-noble metal catalysts material based on available local minerals. The latter allow an original aspect regarding easy extrusion as honeycomb monolith and related advantages which may help moving ahead towards industrial applications.

Biography



Tarik CHAFIK holds a PhD in catalytic processes engineering from the University of Lyon-France (1993). He is currently full Professor, Research Laboratory Director and Master courses coordinator at the Faculty of Sciences and Technique of Tangier (Morocco), where he is teaching Thermodynamic, Chemical engineering, Catalysis and atmospheric pollution control. Before Joining Morocco, he carried out a short industrial experience in the field of Quality insurance in 1993, then moved to academia as Post doc researcher at the Institute of Chemical Engineering Sciences, University of Patras (Greece) with Prof. Verykios (1994). He worked at National Institute for Resources and Environment (AIST, Tsukuba Japan) from 1995 to 1997 then at Department of chemical engineering, University California Berkeley (USA) in 1999 (with Prof. A. T. Bell). His research is focused on sustainable development technologies such as those involving adsorbents and catalysis as well as nanomaterials for energy production and storage. He gained significant management experience as coordinator of several research projects involving international academia and local industrial partners. Other



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