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CAMPUS TECNOLÓGICO E NUCLEAR

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Palestrante/*Speaker*: Snoeckx Ramses

Research group PLASMANT, Department of Chemistry, University of Antwerp, Belgium

Título/*Title*: ***Plasma Based Dry Reforming: Conversion of Greenhouse Gases to Value Added Chemicals and Fuels***

Conversion of the main greenhouse gases CO_2 and CH_4 into value added chemicals and liquid fuels are one of the main challenges for the 21st century. Dry reforming of methane (DRM) has gained significant interest over the years because of its environmental significance. The main disadvantage for implementing catalytic DRM on an industrial scale is its inherent carbon deposition, which leads to catalyst poisoning. As a result, interest for non-conventional reforming technology grew quickly and one of the alternatives considered to have great potential in this area is plasma technology.

The aim of this research is to describe the plasma chemistry for the dry reforming of methane occurring in different discharges, starting with dielectric barrier discharges (DBDs). We seek a better understanding of the reaction kinetics, based on an analysis of the most important reactions, plasma species and operating parameters, via experimentally validated computer models. In this manner, we intend to find an answer to the question how the reaction chemistry looks like for real residence times and what the effect of varying the reaction parameters is, to eventually be able to optimize the plasma based dry reforming process.