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A possibility for a cleaner transport: Non-thermal plasma technology

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It is widely known that the use of fossil fuel produces toxic gases emissions, like greenhouse gases and nitrogen oxides (NO_x). Nevertheless, the impact of biofuels also has adverse health effects and a critical role in the tropospheric chemistry (i.e. ozone precursor); it has been proved that their combustion could emit higher NO_x concentrations, carbonyl compounds and polycyclic aromatic hydrocarbons, identified as toxic, mutagenic and/or carcinogenic. Therefore, is very important to study post combustion technologies; in this particular case a non thermal plasma reactor is proposed to treat several toxic emissions (NO_x, sulfur dioxide, hydrocarbons and particulate matter). We will present experimental results obtained from the treatment of these products with non-thermal plasma. Several reactor configurations are here depicted, highlighting the importance of main experimental parameters; key radicals enabling better removal efficiencies have been elucidated from simple chemical models. Good removal efficiencies at low power input (<80W) are obtained, outlining the plasma as a feasible technology.

Biography

Marquidia Pacheco has a PhD in Physics and Engineering of Plasmas at the University Paul Sabatier, France. She actually works on environmental plasma applications (nanotubes based super-capacitors, syngas, automotive emissions). She has published more than 43 papers in reputed journals, 2 chapters books, 3 patents, 125 congress and has received L'Oreal –UNESCO award: for Women in Science, Mexico.

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