

Editorial

# Methane: A New Open Access Journal

Patrick Da Costa 

Institute Jean Le Rond d'Alembert, Sorbonne Université, CNRS UMR 7190, 2 Place de la Gare de Ceinture, Saint-Cyr-l'Ecole, 78210 Paris, France; patrick.da\_costa@sorbonne-universite.fr

Methane is a chemical compound that can be found naturally on Earth. This simple alkane, with the chemical formula  $\text{CH}_4$ , was discovered in 1776 by Alessandro Volta. Methane is present in natural areas containing low or no oxygen, such as swamps, agricultural sites, sewage sludge, landfills, underground gas reservoirs, oil wells, or coal mines. It is worth mentioning that methane has at least doubled in terms of anthropogenic concentration since the beginning of the 20th century, due to various industrial advancements. Colorless and odorless, methane constitutes, depending on its source, more than 90% of natural gas, representing the third-largest energy resource used worldwide after oil and coal. Methane is also the only hydrocarbon that can be obtained by a simple natural process.

This gas is also biologically produced by living organisms (plants and animals) through digestion or fermentation. Therefore,  $\text{CH}_4$  is the main component of biogas produced by the fermentation of animals or plants in the absence of oxygen. Hence, biomethane can be produced, which can become a form of renewable energy.

Methane can even be produced from  $\text{CO}_2$  through Sabatier's reaction, which was discovered in 1897. Finally, together with  $\text{CO}_2$ , during dry reforming, methane can produce syngas, which is a chemical feedstock with a high added value. Even though methane is today considered a risk to the environment, as one of the main greenhouse gases, tomorrow it could become a usable compound for producing other high-value-added products.

We will be happy to receive your recent research papers and reviews as contributions, as well as articles describing demonstration projects and case studies. We are confident that you will find your own way to contribute to this journal through your research work.

Suggestions for Special Issues from Guest Editors are welcomed, and, in particular, we encourage proposals based on recent research that we can disseminate in open access form in the short term.

Last, but not least, we hope that you enjoy reading articles in *Methane*.

**Conflicts of Interest:** The author declares no conflict of interest.



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### Short Biography of Authors

**Patrick Da Costa** I have been a full professor at the Faculté des Sciences et Ingénierie, Unité de Formation et de Recherche d'Ingénierie of Sorbonne Université (ex UPMC) since 2010. Previously, I was an Associate Professor at the chemistry department of UPMC. I am also member of the CEPT group of Institut Jean Le Rond d'Alembert. I graduated in Physical Chemistry from Université Pierre et Marie Curie (UPMC) in 1993. I received MSc and PhD degrees in Chemistry and Chemical Engineering from Université Pierre et Marie Curie in 1997 and 2000, respectively. My research activities focus on the use of catalysis for clean energy and the environment. Since 2004, I have worked on the development of plasma catalytic systems. First, I worked on air pollution abatement, then on polluted water treatment, and, since 2013, on CO<sub>2</sub> utilization. More specifically, I have worked on methane abatement and utilization since 2002. First, I proposed novel solutions for pollution abatement and control in stationary sources in which methane could be used as a reducing agent for NO<sub>x</sub> abatement through catalytic and plasma catalytic processes. Later, through dry methane reforming, I helped to design novel catalysts for syngas promotion. More recently, focusing on the use of Sabatier's reaction to produce green methane, I helped to develop novel catalytic and plasma catalytic solutions.