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Electrical properties of TiO_2 in a dielectric barrier discharge OLIVIER GUAITELLA, ANTOINE ROUSSEAU, LPTP - Ecole Polytechnique - Palaiseau France — The efficiency of plasma and photocatalyst (TiO_2) combination for volatile organic compounds removal is now proved in atmospheric pressure DBD in air [1]. This efficiency may be due to chemical activity of TiO_2 as well as geometry of the surface or electrical properties of this material. A complete study of electrical properties is performed to check how TiO_2 changes discharge current in a DBD. The average injected energy is compared in plasma, plasma + UV lamp, plasma + TiO_2, plasma + TiO_2 + UV. Then, a statistical study of current peak amplitudes is carried out at different times during one period of the sinusoidal power supply (50Hz). Several populations of current peaks are observed during the positive half period and the negative one. These populations change with and without TiO_2 even for the same averaged injected energy and may be a reason for the depolluting efficiency of plasma/TiO_2 combination. [1] Kang et al, *Journal of Molecular Catalysis* (**2002**)

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