Gas cleaning with catalytic plasma processes

Peter Awakowicz, AEPT, Ruhr University Bochum

A stacked surface DBD reactor is used to treat exhaust gas from large car painting shops. Volatile organic compounds are converted to a certain extent up to a conversion of 100%. In the same time the selectivity for CO is relatively high. The solution for that problem lies in a catalytic MnO2-layer deposited on to the electrode of the surface DBD. In this talk, plasma diagnostics based on OES (optical emission spectroscopy) is combined with reactive species measurements by OAS (optical absorption spectroscopy). Shadowgraphie shows the particle transport, FID measurements delivers the conversion.

Electrical measurements are used to determine the absorbed power. In order to compare the given plasma catalytic gas cleaning with other technologies, the most important values are shown as a function of the specific energy density.