



Project title: **Novel nanocatalytic structured packings for carbon dioxide hydrogenation**

Principal investigator: prof. Jacek Tyczkowski

Duration: 2018-2021

Project no: OPUS 2017/25/B/ST8/00969



OBJECTIVES:

The main purpose of the research, that is based on our novel approach applying the **cold plasma technique** to the implementation of molecular engineering projects, is to design and fabricate the **innovative catalytic systems** composed of transition metal oxides (eg. Co, Fe, Ru, Ni, Ti) and deposited on the **structured packings**. Original thin-film nanocomposites designed at the molecular level and fabricated by a plasma co-deposition method will be studied in terms of their molecular structure, nanostructure and catalytic properties in **hydrogenation of CO₂ into products such as CH₄, CH₃OH, HCOOH**. The aim of the planned research is also establishing the relationship between the structure and catalytic activity of the produced films of nanocatalysts and determination of the mechanisms of catalyzed hydrogenation of CO₂.

PLASMA TECHNOLOGY LAB

