Photocatalytically active coatings for energy efficient water treatment in model-based reactors

Major tasks of this joint project are the development and improvement of TiO2 photocatalysts immobilized on ceramic substrates. Different coating technologies, such as thermocinetal suspension plasma spraying, atmospheric plasma spraying, sol-gel or physical vapour deposition, were applied and compared regarding photocatalytic activity and coating layer stability. Part of this project was also the scale-up from a model-based laboratory scale reactor type with front-side illumination to pilot plant scale, as well as the development of a solar photocatalytic reactor type.

Figure: Experimental setup for photocatalyst testing

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Figure: Samples with methylene blue solutions before (right side) and after (left side) photocatalytic treatment