

## Advanced oxidation processes

### Corresponding author:

Lukáš Vála, valal@kmm.zcu.cz, University of West Bohemia

### Co-authors:

Tomáš Křenek

### Abstract:

There is a great interest in the synthesis of various nanosized green reusable catalysts which would better assist various chemical reactions in industrially important technologies. Heterogeneous catalysts are widely used in advanced oxidation processes. Its can remove organic pollutants in wastewater effluents by faciliting their degradation through ozonization, photolysis, semiconductor photocatalysis, electrochemical treatment and Fenton's oxidation. In the case of using Fenton's oxidation. Pulsed laser irradiation of iron and cobalt sulfides in different enviroments allows laser ablation and generation of FeS, CoS<sub>2</sub> nano/micro particles. The FeS and CoS<sub>2</sub>-based films deposited on Ta deposited on Cu were examined for their catalytic effect in Fenton degradation of methylene blue (MB). However, there is still necessary presence of additional H<sub>2</sub>O<sub>2</sub> which is expensive for wider industrial application. Therefore, these substances are tested for their photocatalytic properties.

### Key words:

Advanced oxidation processes, Fenton oxidation, pulsed laser irradiation, iron and cobalt sulfides