Bachelor-/Master’s thesis

Synthesis and characterization of the catalyst for the photocatalytic degradation of the Micro pollutants from wastewater

Water pollution and lack of clean drinking water are among the most significant problems worldwide. The industrial growth and rise in population have resulted in high demand for resources, whereas the release of toxic materials and wastes to the environment has posed a risk to natural ecosystems and human health. The disposal of wastewaters in the environment is a major concern. Therefore, it is essential to make sure that disposed water is appropriately treated so that it has minimal impact on aquatic life and the environment. One of the ways to deal with such problems is to introduce wastewater treatment technologies.

Photocatalysis based on Nano catalysts is a very promising method for the treatment of contaminated water. We can use solar photocatalysis and artificial ultraviolet (UV) light. Both systems can be applied at ambient temperature to degrade various chemical and microbiological pollutants in water and air. As it makes use of sunlight, solar photocatalysis technology is inexpensive, environmentally friendly, and universally applicable.

Tasks
1. Optimization of degradation experiments
2. Synthesis of the catalyst
3. Modification of the catalyst with suitable metal
4. Characterization of the synthesized catalyst
5. Kinetic study of the degradation experiments
6. Analysis of degradation products using HPLC or LC-MS.

Requirements:
Clean and conscientious working in the laboratory and interest in the field of waste water treatment and engineering. Start possible from July 2020.

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