*Environmental Engineering and Management Journal* May/June 2009, Vol.8, No.3, 439-445
http://omicron.ch.tuiasi.ro/EEMJ/

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# PHOTOCATALYTIC OXIDATION PROCESS OF SULFAMETHAZINE. MODELING BASED ON NEURAL NETWORKS

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## Abstract

The photocatalytic degradation of sulfamethazine, a sulfonamide drug, has been investigated experimentally, in aqueous heterogeneous solutions containing n-type oxide semiconductors as photocatalysts, and by simulation, using neural network modeling. Through direct neural network modeling, the evolution of the photocatalytic oxidation process is evaluated as function of illumination time and type of catalyst. Inverse neural network modeling is a particular optimization that gives information about optimum illumination time which leads to imposed final characteristics of the process. Another important part of this work focuses on two methods to establish the best architecture for neural models: trial and error and genetic algorithm. Both of them provide good results, but the last one is more efficient, with higher probability to provide optimum network topology.

*Key words:* genetic algorithm, neural network modeling, photocatalysis, sulfamethazine

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