

**Artificial Neural Networks in Air Pollution Prediction – Importance of Input Variables – Wioletta Rogula, Jacek Żeliński**

**Summary**

The essentiality of variables in Artificial Neural Networks (ANN) application in predicting concentrations of pollutants in the ambient air is considered in the paper. Evaluation of the essentiality was based on the data on concentrations of pollutants and meteorological conditions recorded by an automatic station monitoring the air quality in Gliwice. The data were analysed with the use of the StatSoft's Statistica Neural Networks (SNN) software, which is designed to simulate performance of artificial neural networks. In total, for all output variables (concentrations of SO<sub>2</sub>, NO, NO<sub>2</sub>, PM<sub>10</sub>), more than 3500 models were tested to create the final neural networks. The best performing models were used to determine the influence of each input variable on levels of pollutant concentrations. Based on these analyses the conclusions were drawn concerning the importance of individual meteorological parameters.