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## **Simulation of Friction Stir Processing of Aluminum Alloys using Artificial Neuron Network System**

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**Abstract:** Friction stir processing is an innovative method to produce advanced and new materials such as composites and Nano-structure materials. Simulating of process using software is an important stage in this production. Artificial Neuron network system (ANN) simulations are based on training a neuron network. In this work, the possibility of using this method in simulating of FSP of Al-alloys is investigated. For this aim, initial data and information are extracted from high validated journals and researches in literatures. Training and self-controlling stages are done using this information. The final stage is to examine the validity investigation of the trained neuron network and compability of the simulation with real experimental data. Results show that, due to the complexity of Friction Stir Processing and higher data, the neuron network system has not been trained well enough to predict other condition results, so to obtain better simulation, more sets of information are needed.

**Keywords:** FSP, Al-Alloys, Artificial Neuron Network, Simulation