Research on NN and RKB Based Expert System of Resistance to Corrosion of Sulfate on Concrete*

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ABSTRACT*

The problem of sulfate corrosion on concrete has been focused by the people all over the world. However, the concrete field knowledge is so complicated that it is hard to conclude some certain rules and express them. Therefore, a kind of ES based on relationship knowledge base (RKB) and neural network (NN) was designed in the paper by analyzing on limitations of traditional ways about knowledge representation, knowledge acquisition and knowledge discovery. In the paper, knowledge was stored in the RKB and data table. One data table can relate well to another by a special index field. Additionally, because neural network (NN) has abilities in self-learning, associative memory and parallel distributed computing, a kind of distributed computing algorithm was proposed in the paper, which was used to solve many problems, such as knowledge acquisition, knowledge discovery, parallel reasoning and so on. Due to using RKB and NN, the performance of the ES has been improved greatly.

Keywords: Expert System; Neural Network; Distributed Computing; Relationship Knowledge Base; Resistance to corrosion of sulfate

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