Modeling Slump Flow of High-Performance Concrete Using a Back- Propagation Network

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Abstract

This paper proposes a back-propagated network (BPN) and applies it to estimate the slump flow of high-performance concrete (HPC). HPC is a highly complex material whose behavior is difficult to model, especially slump flow. Slump flow estimation is a function of the content of all concrete ingredients, including cement, fly ash, blast furnace slag, water, superplasticizer, and coarse and fine aggregate. BPN is a well-known method, used to automatically discover the complex relationships among nonlinear systems. The results show that BPN predicts the slump flow of HPC with satisfyied estimating errors.

Keyword：back-propagated network (BPN), slump flow, high-performance concrete