Multilevel flow modeling of Monju Nuclear Power Plant

Multilevel Flow Modeling is a method for modeling complex processes on multiple levels of means-end and part-whole abstraction. The modeling method has been applied on a wide range of processes including power plants, chemical engineering plants and power systems. The modeling method is supported with reasoning tools for fault diagnosis and control and is proposed to be used as a central knowledge base giving integrated support in diagnosis and maintenance tasks. Recent developments of MFM include the introduction of concepts for representation of control functions and the relations between plant functions and structure. The paper will describe how MFM can be used to represent the goals and functions of the Japanese Monju Nuclear Power Plant. A detailed explanation will be given of the model describing the relations between levels of goal, function and structural. Furthermore, it will be explained how goals and functions of the control systems are represented using the recent MFM extensions for modeling control functions.

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