Process Fault Propagation Path Method for Process Monitoring and Fault Diagnosis

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Chemical process is a massive device industry consisting of large number of unit processes and has strong linear or nonlinear correlation among the process variable in process operating. Fault detection and diagnosis is one of the most important tasks for the successful operation of any process. Process monitoring plays an important role in detecting process upsets, equipment malfunctions, or other special events as early as possible. Process fault propagate between process unit or sensors due to the interconnections of material and control flows. This work suggests the fault diagnosis method using fault propagation and principal component analysis(PCA). Fault propagation offers a simple and graphical representation for the correlation with process variables and builds the fault propagation pattern using process scale data. Based on this propagation model, we can easily reveal the root cause of process fault situation.
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