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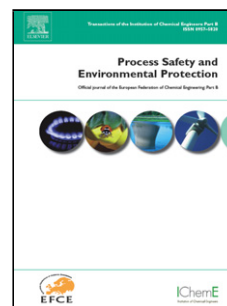
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An Integrated Approach for Dynamic Economic Risk Assessment of Process Systems

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highlights

- A novel methodology to do process economic risk analysis
- A Bayesian network based process risk model considering probabilistic loss functions
- Application of the proposed methodology and model to real life case study

Abstract

This paper proposes a dynamic economic risk analysis methodology for process systems. The Bayesian Tree Augmented Naïve Bayes (TAN) algorithm is applied to model the precise and concise probabilistic dependencies that exist among key operational process variables to detect faults and predict the time dependent probability of system deviation. The modified inverted normal loss function is used to define system economic losses as a function of process deviation. The time dependent probability of system deviation owing to an abnormal event is constantly updated based on the present state of the relevant process variables. The integration of real time probability of system deviation with potential losses provides the risk profile of the system at any instant. This risk profile can be used as the basis for operational decision making and also to

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