

# Diagnostic Robuste des Systèmes Energétiques par l'approche Bond Graph

**Nadir BOUTASSETA**

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**Abstract :** Supervision and monitoring systems have a major role to the security of industrial plants and availability of its equipments. Early detection and isolation of incipient faults may prevent the factory from disaster. Industrial plants integrate many technology components that are governed by several physical phenomenas, that's why Bond Graph tool which is based on an energy and multiphysics analysis is well suited. The resulting bond graph model can subsequently be used in model-based fault diagnosis methods that allows the detection and isolation of faults. In this study, we address the problem of diagnosis of energy systems by presenting a state of the art of diagnosis methods. Next, we introduce Bond Graph modeling procedure with applications in different physical domains. Bond Graph model-based diagnosis methods are presented after, followed by its extension to robust fault diagnosis methods. Finally, application examples of the diagnosis method are presented.

**Keywords :** diagnostic, modélisation, Bond Graph, redondance analytique