



SBG for Health Monitoring of Fuel Cell System

Submitted by Nizar Chatti on Fri, 10/17/2014 - 14:16

| | |
|-----------------------|--|
| Titre | SBG for Health Monitoring of Fuel Cell System |
| Type de publication | Chapitre |
| Type | Ouvrage scientifique |
| Année | 2014 |
| Langue | Anglais |
| Pagination | 73-85 |
| Numéro du chapitre | 7 |
| Titre de l'ouvrage | Renewable Energy: Generation and Applications |
| Edition | Springer International Publishing |
| Auteur | OuldBouamama, Belkacem [1], Chatti, Nizar [2], Gehin, Annelise [3] |
| Pays | Suisse |
| ISBN | 978-3-319-05707-1 |
| Mots-clés | bond graph [4], Diagnosis [5], health monitoring [6], pem fuel cell [7] |
| Résumé en anglais | <p>To guarantee the safe operation of the Fuel Cell (FC) systems, it is necessary to use systematic techniques to detect and isolate faults for diagnosis purposes. The problematic for Fault Detection and Isolation (FDI) model-based of fuel cell consists in that such system is bad instrumented, its model is complex (because of coupling of multi-physical phenomena such as electrochemical, electrical, thermo fluidic...) and the numerical values related to it are not always known. This is why qualitative model (based on existence or not of the links between variables and the relations) is well suited for fuel cell diagnosis. In this paper, we propose a new graphical model (named Signed Bond Graph) allowing to combine both qualitative and quantitative features for health monitoring (in terms of diagnosis and prognosis) of the fuel cell. The innovative interest of the presented paper is the use of only one representation for not only structural model but also diagnosis of faults which may affect the fuel cell. The developed theory is illustrated by an application to a Proton Exchange Membrane Fuel Cell (PEMFC).</p> |
| URL de la notice | http://okina.univ-angers.fr/publications/ua5084 [8] |
| DOI | 10.1007/978-3-319-05708-8_7 [9] |
| Lien vers le document | http://link.springer.com/chapter/10.1007/978-3-319-05708-8_7 [10] |

Liens

[1] [http://okina.univ-angers.fr/publications?f\[author\]=8514](http://okina.univ-angers.fr/publications?f[author]=8514)

[2] <http://okina.univ-angers.fr/nizar.chatti/publications>

[3] [http://okina.univ-angers.fr/publications?f\[author\]=8515](http://okina.univ-angers.fr/publications?f[author]=8515)

[4] [http://okina.univ-angers.fr/publications?f\[keyword\]=9505](http://okina.univ-angers.fr/publications?f[keyword]=9505)

- [5] [http://okina.univ-angers.fr/publications?f\[keyword\]=7585](http://okina.univ-angers.fr/publications?f[keyword]=7585)
- [6] [http://okina.univ-angers.fr/publications?f\[keyword\]=9515](http://okina.univ-angers.fr/publications?f[keyword]=9515)
- [7] [http://okina.univ-angers.fr/publications?f\[keyword\]=9514](http://okina.univ-angers.fr/publications?f[keyword]=9514)
- [8] <http://okina.univ-angers.fr/publications/ua5084>
- [9] http://dx.doi.org/10.1007/978-3-319-05708-8_7
- [10] http://link.springer.com/chapter/10.1007/978-3-319-05708-8_7

Publié sur *Okina* (<http://okina.univ-angers.fr>)