

## Abstract

In this study, an advanced way of dealing with testable subsystems and residual generation for fault detection and isolation based on structural analysis is presented. The developed technique considers execution issues; therefore, it has a more realistic point of view compared to classical structural approaches available in the literature. First, theoretical aspects of structural analysis are considered and introduced. Then the way of incorporating them to test the structural proprieties is explained. Finally, we show how the proposed (upgraded) matching rank algorithm can be used in order to choose the most suited matching that leads to computational sequences and detection tests. The method is demonstrated using an electrical circuit