New results for Sensor Placement with Diagnosability Purpose

**Objective:** Design of sensor placements satisfying the diagnosability specifications

What are the sensors that satisfy diagnosability specifications?
Method:
The specifications can be fulfilled if it is possible to get the following incidence matrix:

Lemma 1: A set of constraints $K$ linked by a set of variables $V$ is necessarily non-discriminable.

Lemma 2: A set of constraints $K$ isolated by a set of variables $V$ is necessarily non-detectable.

Lemma 2: If additional terminal constraints dealing with all the variables in $\text{var}(K)$ are added, then the constraints of $K$ are necessarily diagnosable.

Theorem: Sufficient condition for the specifications to be fulfilled:

1. $K_{\text{non\_det}}$ is detectable
2. Each set of $K_{\text{non\_det}}$ is linked by a set of variables in considering only $K_{\Sigma} \setminus K_{\text{non\_det}}$
3. Additional terminal constraints are added on the others variables, which are not implied in 1 and 2.