



PREMIO DI LAUREA “F. SOAVI” 2024

Scheda sintetica tesi

Titolo tesi:

An approximate analytical method for the performance evaluation of semiconductor front-end fabrication with model-based inspection strategies and in-process rework

Relatori

Tullio Antonio Maria Tolio, Maria Chiara Magnanini, Dragan Djurdjanovic

Autori della tesi

Matteo Carabelli

Presenting author (chi esporrà il lavoro in Assemblea)

Matteo Carabelli

Corso di Laurea Magistrale

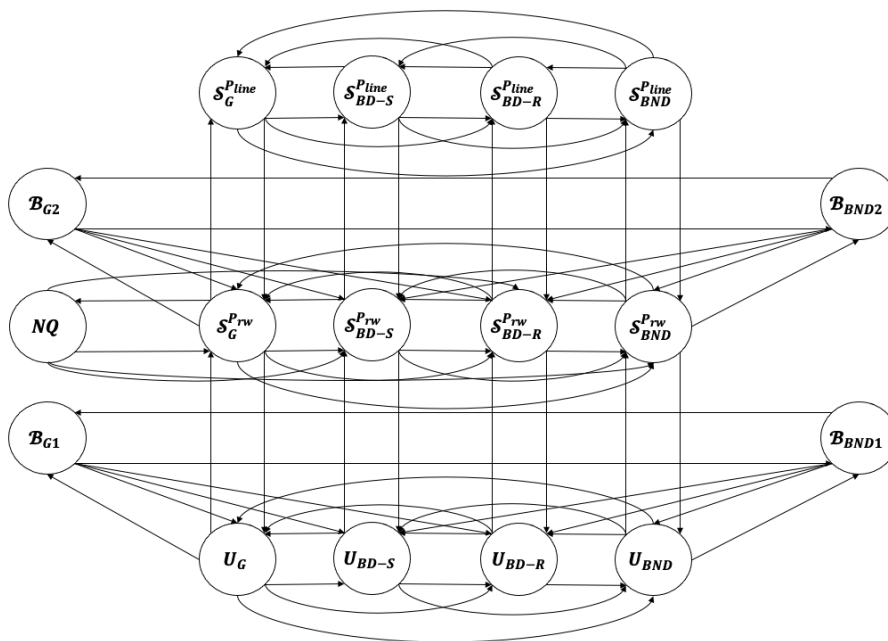
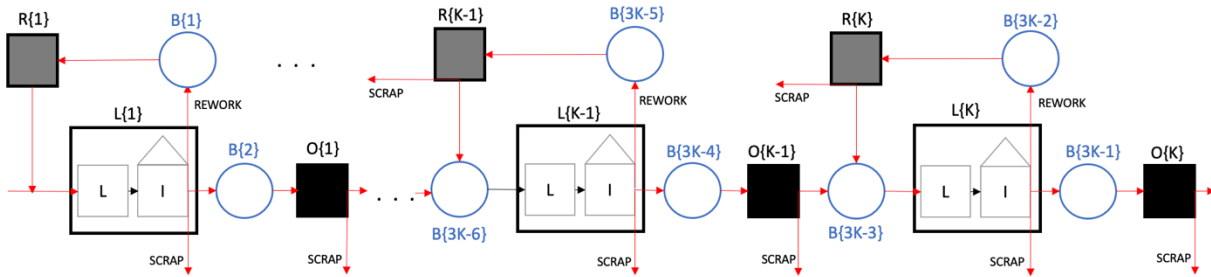
Mechanical Engineering

Università di appartenenza

Politecnico di Milano

Abstract del lavoro di tesi (massimo 1000 caratteri)

The aim of this thesis is to unify product, process, and system levels so as to enable the optimization of multi-stage manufacturing systems responsible of semiconductor front-end fabrication. Two novel approximate analytical models for the performance evaluation are introduced based on a two-level decomposition model. The relation between quality errors and process parameters in lithography processes is considered thanks to a stochastic control model to account for defective parts that are scrapped or reworked. In the two models presented, re-entrant flow of reworked parts in the main line have been modelled according to two different dispatching policies.



Optimal Number of Markers: Cost Sensitivity Analysis

