Abstract:
In this paper, a transient load share methodology for a hybrid diesel electric marine propulsion system is presented. Aim of the system is the performance enhancement and reduction of gaseous emissions during low-load transient operation. The controlled variable is $\lambda$ while the manipulated variable is the torque from the electric motor regulated by a frequency inverter.

The model for the $\lambda$ behavior is based on experimental identification while $\lambda$ values in feedback loop come from an actual and a virtual sensor, the later based on first principles modeling. A nominal model is used for the synthesis of a robust $H_{\infty}$ controller for the controlled variable regulation.