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A Generalized PSS Architecture for Balancing Transient and Small-Signal Response

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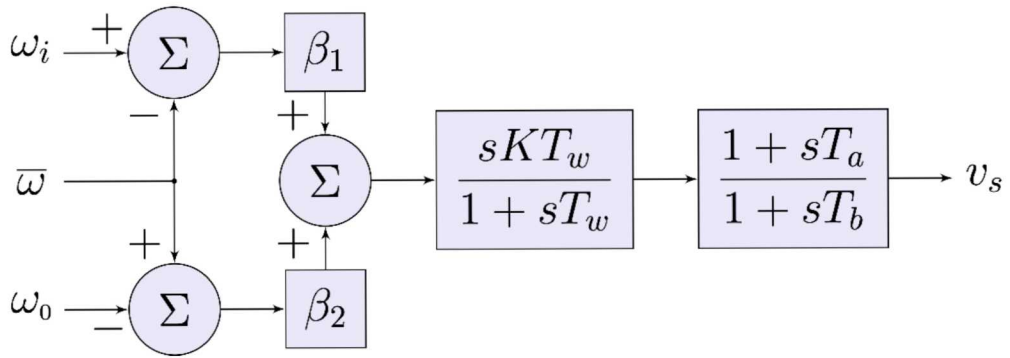
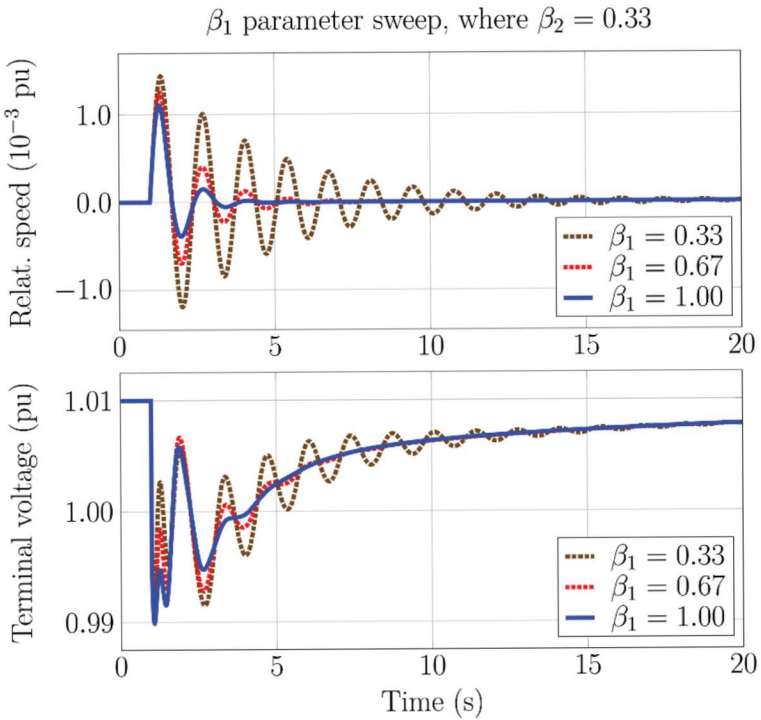
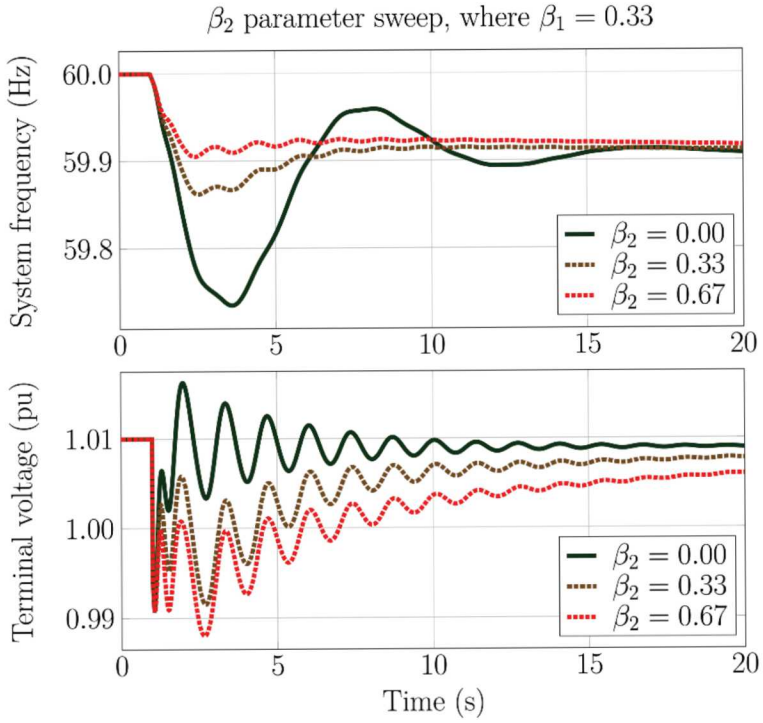
Overview

- Objectives:
  - To improve coordination between the AVR and PSS
  - To create tuning flexibility that decouples oscillation damping from the effect on the freq. regulation mode



Sensitivity analysis





Research summary

- A generalization of the standard $\Delta\omega$ PSS
  - Improves the damping of local and inter-area modes
  - Oscillation damping is decoupled from the PSS' role in shaping the system response to transient disturbances
  - The interaction between the PSS and AVR can be precisely adjusted based on voltage requirements
  - Tolerant to communication delay and other nonidealities