

"A Modal Stabilizer for the Independent Damping Control of Aggregate Generator and Intraplant Modes in Multigenerator Power Plants", by N. Martins and Thiago S. Bossa, IME

Abstract: A modal 2-channel power system stabilizer structure is proposed for multigenerator power plants having units with similar parameters and loading. A channel is designed to damp only the aggregate generator electromechanical mode while the other is designed to damp only the intraplant modes. Simplified analytical models helped to mathematically demonstrate that the dynamics of the two channels of the proposed stabilizer are decoupled by the feedback of specific linear combinations of rotor speeds to each one of the channels. The diagram below is for the 2-channel PSS for a 3-unit power plant. Linear and nonlinear simulation results for a detailed model of a multigenerator plant are included to show the gains in using the proposed 2-channel PSS to solve challenging oscillation damping control problems.

About the Speaker: Nelson Martins obtained his BSc in 1972 and MSc in 1974 in Electrical Engineering from the University of Brasillia and PhD in 1978 from the UMIST, now the University of Manchester. He joined CEPEL, the Brazilian Electrical Power and Energy Research Centre located in Rio-De Janiero in 1978. He developed methods and computer tools for power system analysis, dynamics and control, and specialized in eigensolution method. He has been consultant to many engineering project. He is the originator of the PacDyn software package that is widely used for power system small signal analysis and design. He was

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