

# **Design of robust controllers for damping interarea oscillations: application to the European power system**

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## **Abstract-**

**This paper presents a robust controller designed to address both local and interarea oscillations. It is an extension of the desensitized four-loop regulator (DFLR) that has been developed by Electricité de France. The suggested controller is a second-order state-space regulator which will be called the extended DFLR (EDFLR). As the DFLR, the EDFLR can be converted to an AVR+PSS structure. The performance of the EDFLR has been extensively tested using modal analysis and time-domain simulations of a large-scale model of the European power system.**

**Index Terms-** Desensitization method, interarea oscillations, optimal control, robust controllers.

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