

## A NEW TOOL FOR CONTROL AND DIAGNOSTIC OF ELECTRICAL NETWORK

*L.F. Bayón; J.M. Grau; J.A. Otero; M.M. Ruiz; P.M. Suárez*

Department Mathematics  
University Oviedo  
Asturias. España.  
E-mail: bayon@sci.cpd.uniovi.es

### **Abstract:**

In this work, a new program to solve the hydro-thermal scheduling and the optimal load flow is presented by means of the detection of possible errors in the network. A multinodal network model is studied, adding inequality restrictions, to adjust the admissible variations in active and reactive powers, voltages and phase angles. In this way a diagnostic on possible unsatisfactions of the security requirements at the transmission network is effectuated, so that it allows the evaluation of new loss coefficients. A new and more realistic model for the network is introduced, meanwhile the optimal values of the system are obtained. The program is easily implemented and is able to solve very complex problems with any configuration of hydraulic plants.

### **Keywords:**

Tools for diagnostics, Electrical networks, Control, Design.