عنوان مقاله:

Tuning of PID for LFC and AVR Systems

محل انتشار:

پنجمین کنفرانس بین المللی رویکردهای نوین در نگهداشت انرژی (سال: 1394)

تعداد صفحات اصل مقاله: 6

نویسندگان:

Mehdi Mirzaei - *PhD Student, Department of Electrical Engineering, Ardabil Branch, Islamic Azad University, Horand, Iran*

Aref Jalili Irani - *Department of Electrical Engineering, Ardabil Branch, Islamic Azad University, Ardabil, Iran*

Alireza Noruzi - *Department of Electrical Engineering, Ardabil Branch, Islamic Azad University, Ardabil, Iran*

خلاصه مقاله:

Load Frequency Control (LFC) and Automatic Voltage Control (AVR) are one of the most important issues in electric power systems. Although Proportional–Integral (PI) controllers are commonly used for LFC and AVR systems in industry, they are unable to obtain good dynamic behavior in presence of various load changes and operating conditions because the PI controller parameters are usually tuned based on a classical error approaches. This paper present a new approach for tuning the suitable values for the proportional- integral –derivative (PID) controller parameters of load frequency control (LFC) and Automatic Voltage Regulator (AVR) systems using the imperialist competitive algorithm (ICA). This requires designing an accurate and fast controller to preserve the system parameters at nominal value. The basic purpose of system generation control is to balance the system generation against the load and losses in order to be preserved the desire frequency and power interchange between neighboring systems. The proposed method shows the application of ICA method to search optimal PID controller parameters of LFC and AVR systems. The proposed method had different capability like, easy implementation and good computational efficiency. The results were compared with other evolutional algorithm like SFL and PSO and the .advantage of proposed method was revealed

کلمات کلیدی:

Load Frequency Control (LFC), Automatic Voltage Control (AVR), Imperialist Competitive Algorithm (ICA), Shuffled (Frog Leaping algorithms (SFL