## عنوان مقاله:

Adjusting the Coefficients of the PI^α D^β Controllers Using Iterative Feedback Tuning (IFT) Algorithm

## محل انتشار:

مجله کنترل و بهینه سازی در ریاضیات کاربردی, دوره 5, شماره 2 (سال: 1399)

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## خلاصه مقاله:

Iterative feedback tuning (IFT) is an algorithm for adjusting the coefficients of the integer-order type proportional-integral-derivative (PID) controllers without needing a system model. The IFT algorithm is performed iteratively with the aim of optimizing the control coefficients at each stage via an objective function. In this research, for the first time, the IFT algorithm is used to adjust all the coefficients of the fractional order PID controllers, i.e., PI^α D^β controllers to have optimal performance. For this purpose, fractional order calculations and the integer-order version of the IFT algorithm are firstly presented, and the novel IFT algorithm is then used to adjust coefficients of the PI^α D^β controller. Finally, the performance of the proposed method is illustrated and verified through some examples.

## کلمات کلیدی:

Fractional order PID, Iterative feedback tuning, PID controller, PI^α D^β controller, Fractional order calculus, Fractional order systems