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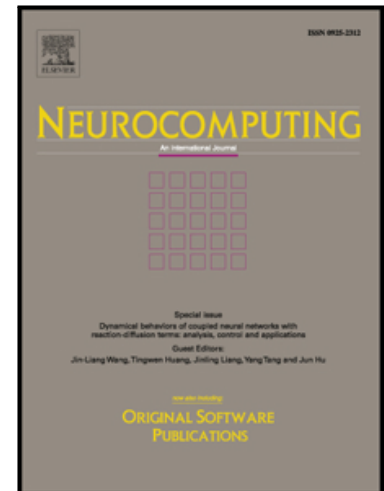
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# Finite-time synchronization of fractional-order complex networks via hybrid feedback control

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**Abstract:** This paper addresses the problem with respect to finite-time (FT) synchronization for fractional-order (FO) complex networks. Based on hybrid feedback control technique, Lyapunov approach, and some novel analysis techniques of fractional calculation, some sufficient conditions are obtained to guarantee FT synchronization, and the estimation bound of the setting time for synchronization is given. It is meaningful to find that the setting time is dependent on fractional order, controller parameters and initial value of networks. At last, numerical simulations are presented to illustrate the effectiveness and applicability of our proposed control method and verify our theoretical results.

**Keywords:** Finite-time synchronization; Fractional-order; Complex network; Hybrid feedback control.

## 1 Introduction

It is generally known that complex network consists of a great quantity of nodes and edges, and each node and edge have their corresponding meanings, thus many natural and artificial systems in reality can be described by complex networks, such as the Internet networks, traffic networks, neural networks, epidemic spreading networks, scientific citation networks, and so on [1-5].

Synchronization, as a significant and interesting phenomenon of complex networks, has received wide attention of numerous scholars from different fields. From the view of synchronization time, synchronization can be separated into two broad categories, one is

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