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Sliding mode synchronization of fractional-order chemical reactor chaotic system. (Chinese. English summary) Zbl 07448793

Summary: Sliding mode synchronization of fractional order chemical reaction chaotic systems is studied. The sufficient conditions for synchronization of fractional order chemical reaction chaotic system are proved by designing sliding mode function, controller and adaptive laws. Finally, numerical simulation shows that under certain assumptions, the synchronization error trajectory of the chemical reaction chaotic system can reach the sliding surface by designing adaptive control laws.

MSC:
93B12 Variable structure systems
93C40 Adaptive control/observation systems
37D45 Strange attractors, chaotic dynamics of systems with hyperbolic behavior

Keywords:
sliding mode synchronization; chemical reaction; chaotic system