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SLIDING MODE CONTROL OF UNCERTAIN UNIFIED CHAOTIC FRACTIONAL-ORDER NEW LORENZ-LIKE SYSTEM

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Abstract. In this paper, a sliding mode control law is designed to control chaos in a class of fractional order new Lorenz-like chaotic systems. By using the sliding mode control method, the states of the fractional-order system have been stabled, even if the system with uncertainty is in the presence of external disturbance. The stability of the corresponding equilibria is also argued similarly to the integer-order counterpart. Next, The chaotic behaviors in the fractional order unified system are numerically investigated.

Keywords. New Lorenz-like system, Fractional order, Sliding mode control, Chaotic, Stability.

AMS (MOS) subject classification: 34D20, 34A08, 37D45.

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