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NAME OF TOPIC: Multi-switching Synchronization Schemes and
Non-linear Dynamical Systems

KEYWORDS: Dynamical Analysis, Chaos, Synchronization, Control Methods, Secure
Communication.

Findings

Thesis introduces chaos and syn-

chronization discussing their properties and application. It also defines fractional

calculus and gives its various definitions. Tools of chaos theory such as bifurcation

analysis etc are also discussed

Next a novel integer order hyper chaotic system is given and does its thorough dynamical

analysis.

The equilibrium point of the system is classified based on the type of eigen values.

The systems are synchronized in "multi-switching compound difference synchroniza-

tion".

Then Multi-switching HPS among fractional chaotic systems

with uncertainty and disturbances" synchronization scheme using adaptive sliding

mode control technique between fractional order Liu chaotic system and fractional

order Genesio-Tesi chaotic system. Comparison of results with previous published

paper is also given.

Next Double Compound- Combination Hybrid Synchronization" between four master

systems- two scaling master

systems and two base master systems and four slave systems.

Then Analysis and Application Using Quad Compound Combination Anti-

synchronization on Novel Fractional Order Chaotic System" is introduced and analyzed.

In the last Novel Fractional Chaotic System With Analysis and Appli-

cation" extends the synchronization scheme of chapter 5 on two master systems and

ten slave systems viz. penta compound combination anti-synchronization on novel

fractional order chaotic system. Chaos in the novel system is also controlled about

equilibrium points using adaptive sliding mode technique.