

Abbreviations

FLM	Flexible link manipulator
SLFM	Single link flexible manipulator
RLM	Rigid link manipulator
TLFM	Two link flexible manipulator
FC	Fractional calculus
FO	Fractional order
PID	Proportional integral derivative
FOPID	Fractional order proportional integral derivative
IMSC	Independent modal space control
VSC	Variable structure control
SMC	Sliding mode control
HOSMC	Higher order sliding mode control
SOSMC	Second order sliding mode control
DOF	Degree of freedom
TA	Twisting algorithm
STA	Super twisting algorithm
CTA	Continuous twisting algorithm
AMM	Assumed mode method
FEM	Finite element method
SMO	Sliding mode observer

DO	Disturbance observer
FSMC	Fractional order sliding mode control
FSMO	Fractional order sliding mode observer
ODE	Ordinary differential equation
PDE	Partial differential equation
FDE	Fractional differential equation
RTI	Real time interface
KE	Kinetic energy
PE	Potential energy