

This technical note extends the decoupling method for singularly perturbed systems, Chang transformation, from linear slowly time-varying systems to linear time-varying systems with semi-proper (self-commutative) fast subsystems through the constructions of contraction mappings when negative real parts of the parallel differential-eigenvalues are used to guarantee the exponential stability of the perturbed systems. MacLaurin series forms and iterative solutions in an interval of the singular perturbation parameter for the differential Riccati equation and the differential Sylvester equation are provided, which are key steps for the Chang transformation construction.