

This technical note presents an approach to deal with model uncertainty in iterative learning control (ILC). Model uncertainty generally degrades the performance of conventional learning algorithms. To deal with this problem, a robust worst-case norm-optimal ILC design is introduced. The design problem is reformulated as a convex optimization problem, which can be solved efficiently. The technical note also shows that the proposed robust ILC is equivalent to conventional norm-optimal ILC with trial-varying parameters; accordingly, the design tradeoff between robustness and convergence speed is analyzed.