

Optimization of Control Parameters for Active Control Pantograph

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For the improvement in speed, many problems have to be solved for the current collection system. Not only aeroacoustic noise of a pantograph but also contact force fluctuation between a pantograph and the contact wire has to be reduced. Therefore, using the pantograph with active control techniques is effective approach to the reduction of contact force fluctuation. This study proposes feed-forward control technique for reducing contact force fluctuation, based on the information about support spans and train running speed. In order to control the pantograph efficiently, magnitude and phase lag of the control force acting on the pantograph frame have to be optimized. This study utilizes the steepest descent method to optimize the control parameters.