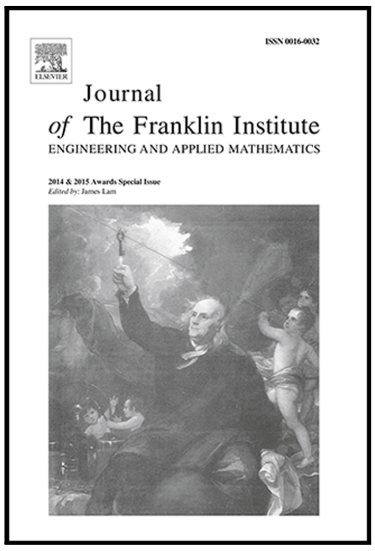

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Active disturbance rejection control for electric power steering system with assist motor variable mode

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Abstract

The steering torque of automobile EPS steering system is significance for driving steering control and good driving feel. Servo motor control and external interference moment are the core factors affecting EPS steering system. With the advancement of automotive technology, the requirements of EPS control technology have been gradually improved, and the driving and handling of vehicles at high speed have become the key issues. For the current EPS steering system at high speed vibration and steering feel, active disturbance rejection EPS torque control method is proposed, EPS variable mode controller was developed. The control of the variable mode is verified by experiment and the vibration torque from the road is controlled, determine the control frequency of 30KHz, the amount of current fluctuation is the smallest. The ADRC (active disturbance rejection controller) technology is used to suppress the interference of the road surface, finally, the validity of active immunity is verified by bench test. Steering wheel vibration torque can be reduced by an average of 28.5% to 33.3%.