

Accepted Manuscript

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

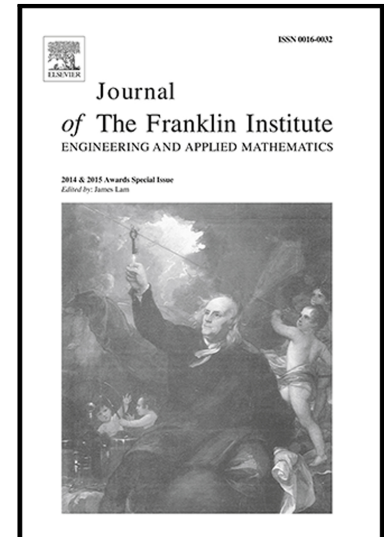
Xinlei Ma , Yongfeng Guo , Lan Chen

PII: S0016-0032(18)30032-2
DOI: [10.1016/j.jfranklin.2017.12.024](https://doi.org/10.1016/j.jfranklin.2017.12.024)
Reference: FI 3276

To appear in: *Journal of the Franklin Institute*

Received date: 24 August 2017
Revised date: 17 November 2017
Accepted date: 4 December 2017

Please cite this article as: Xinlei Ma , Yongfeng Guo , Lan Chen , Active disturbance rejection control for electric power steering system with assist motor variable mode, *Journal of the Franklin Institute* (2018), doi: [10.1016/j.jfranklin.2017.12.024](https://doi.org/10.1016/j.jfranklin.2017.12.024)



This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

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

Xinlei Ma^a, Yongfeng Guo^{a,*}, Lan Chen^b

^a School of Mechanical Engineering, Harbin Institute of Technology,
150001, Harbin China,

^b School of Energy and Civil Engineering, Harbin University of Commerce,
150028, Harbin China

*Corresponding author: guoyf@hit.edu.cn

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%.

Download English Version:

<https://daneshyari.com/en/article/6952926>

Download Persian Version:

<https://daneshyari.com/article/6952926>

[Daneshyari.com](https://daneshyari.com)