基于V流程的驱动防滑控制系统控制器设计与试验 Design and Road Tests of ASR Controller Based on the V-flow

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关键词： 驱动防滑控制系统 控制器 设计 硬件在环仿真 试验

摘 要： 对于驱动防滑控制系统（ASR），传统开发方法通过实车道路试验验证控制算法并完成匹配标定，开发周期长、成本高，且必须在完成控制器硬件之后才能实施道路试验，难以满足软硬件并行工程需要。利用V流程方法开发了ASR控制器，研究了ASR系统建模与仿真、快速控制原型、硬件在环仿真实施以及实车试验标定与验证，完成了ECU设计。设计过程和测试结果表明，设计的ECU较好地实现了ASR控制功能，应用V流程设计车辆电子控制系统具有较大的优越性。 For acceleration slip regulation system(ASR), the traditional method develops the control algorithm through vehicle road experiments, which needs a long period and a high cost. The experiments are only carried on after the development of ECU hardware, which can’t meet the requirement of parallel engineering of software and hardware. The ASR controller was developed based on the V-flow method. Then the development of ECU was accomplished, by the modeling and simulation of ASR system, implementation of rapid control prototype(RCP), hardware-in-the-loop simulation(HILS), and the vehicle road tests. The research results indicate that the developed ECU can realize the ASR function preferably, and the V-flow developing method is ascendant to develop of the vehicle electronic control systems.

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