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# 基于多体系统动力学的悬架虚拟样机库

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摘要 从悬架的运动学和柔顺性（K&C）关系入手，以多体系统动力学为理论依据，建立了包含多种悬架的虚拟样机库。该虚拟样机库具有：①开放性。通过修改参数可以方便地构建用户自己的悬架虚拟样机；②实用性。虚拟样机库中的悬架都是企业实车悬架，对其仿真得出的悬架K&C特性具有重要的工程参考价值；③基础性。可快速构建多种前后悬架布置形式的整车虚拟样机。该虚拟样机为悬架产品乃至底盘产品的综合化、集成化、并行化设计打下了基础。

关键词 车辆工程,虚拟样机,多体系统动力学,悬架,运动学和柔顺性特性

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# Suspension virtual prototype database based on multi body system dynamics

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**Abstract** Based on the theory of multi body system dynamics,a virtual suspension prototype database was established from the suspension kinematics and compliance(K&C) relationships.The database includes many kinds of suspension,is characterized by following merits:(1)openness,the user may conveniently build its own suspension virtual prototype through parameter modification;(2)practicability,all suspensions included in the database are the real suspensions in the manufacturer products,the suspension K&C characteristis obtained from simulation are valuable for engineering reference;(3)basicness,whole vehicle virtual prototypes with different front and rear suspensions may be built from the database.The built database lays a foundation for synthesis,integration,and design parallelization of the vehicle suspension and even whole chassis product.

**Key words** vehicle engineering virtual prototype multi body system dynamics suspension kinematics and compliance(K&C) characteristic

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