

## Improvement of Ride Comfort of Turning Electric Vehicle Using Optimal Speed Control

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**Abstract :** With the spread of EVs (electric Vehicles), the ride comfort has been gaining a lot of attention. The influence of the lateral acceleration is important for the improvement of ride comfort of EVs as well as the longitudinal acceleration, especially upon turning of the vehicle. Therefore, this paper proposes a practical optimal speed control method to greatly improve the ride comfort in the vehicle turning situation. For constructing this method, effective criteria that can appropriately evaluate deterioration of ride comfort is derived. The method can reduce the influence of both the longitudinal and the lateral speed changes for providing a comfortable ride. From several simulation results, we can see the fact that the method can prevent aggravation of the ride comfort by suppressing the influence of longitudinal speed change in the turning situation. Hence, the effectiveness of the method is recognized.

**Keywords :** electric vehicle, speed control, ride comfort, optimal control theory, driving support system

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