

## **Design of Car Body by the Method of Structural Optimization**

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Recently, demands for the safety and comfortability of railway vehicles have been increasing. However, it is difficult that car bodies are so designed as to satisfy them by the current method under collisional subjects of the structure cannot be evaluated. Moreover, the stress analysis of the whole of the vehicle is indispensable for evaluating complicated load paths on the very long body. Accordingly, a method of structural optimization based on the finite element analysis was developed to establish a rational design method of car bodies. In this method, an analysis algorithm with an optimization method is adopted by zooming in the region to be estimated from the analysis results of the whole of a car body. The possibility of achieving the high-rigidity and light-weight of car bodies was indicated through conducting the structural optimization by the present algorithm.