

**Study of Strength Improvement for Car Body
by the Method of Structural Optimization**

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Recently, demands for the safety and conformability, etc. of railway vehicles are increasing. However, it is difficult that car bodies are designed to satisfy them by the previous method because the estimation of conflict subjects on the structure is needed. Moreover, the stress analysis of the whole of the vehicle is indispensable for evaluating complicated load paths for a very long body. Accordingly, a method of structural optimization based on the finite element analysis to establish the rational design method of car bodies, was developed. We have proposed, as an analysis algorithm, an optimization method by zooming in on the estimated region from the analysis results on the whole of a car body. The possibility of achieving the high-strength and light-weight of car bodies was indicated through conducting the structural optimization by the constructed algorithm.