

**Development of Models for Co-simulation of Mechanics and Electromagnetics  
for Dynamic Analysis of Superconducting Maglev Vehicles Moving with Large Displacements**

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Computer simulations have been performed to study vehicle dynamics of superconducting Maglev vehicles for purposes such as of improving ride comfort. Recently, the authors have constructed new simulation models of Maglev vehicles to study non-linear dynamic motions of the vehicles moving with large displacements. There have already been computer simulation models of wheel-on-rail vehicles using multibody dynamics. However, unlike wheel-on-rail vehicles, Maglev vehicles have electromagnetic springs without physical contact. Co-simulation methods of mechanics and electromagnetics must be devised for Maglev simulation models. This paper describes concepts of the newly-constructed models and the results of studies using these models.