

**Three Dimensional Dynamic Simulation of Pantograph-Catenary System
Based on Finite Element Method**

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In order to analyze dynamic behavior of pantograph/catenary system, the numerical simulation program based on the finite difference method (FDM) has been being used for researches, developments, and operations of electric railways for a long time. However, the finite element method (FEM) is more suitable for dynamic analysis subjected to geometrical nonlinearity associated with three-dimensional structure of catenary. Hence, the author has newly developed a new simulation program based on FEM, which can analyze dynamic behavior of pantograph/catenary system with three-dimensional configuration.