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Thu-Mo-Po4.13-08 [103]: Study on the EDS-Maglev System Based on Dynamic Circuit Theory

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An EDS-Maglev system mainly consists two parts: ground null-flux coils and superconducting magnet on a vehicle or sled. This paper forces on the study of the characteristics of the EDS-Maglev system using dynamic circuit theory. A numerical method including 4-order Runge-Kutta method and inductance space criterion was proposed to improve the calculation accuracy. The calculated results were verified by both the reported data and the simulated results using finite software. Based on the dynamic method, we analyzed the influence of different parameters, such as the distance between adjacent null-flux loops, suspension height, speed and so on, on the EDS-Maglev characteristics, especially in high-speed range. The results of this paper could provide useful information for designing the suspension guidance system of a high-speed transport system and space electromagnetic boost launch.

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