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# Simulation Study on Maglev Performance of High Temperature Superconductors in Low Pressure Environment

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High temperature superconducting Maglev evacuated tube transport (HTS Maglev ETT) system has significant potential for rail transit applications, due to the advantages of self-stable levitation, no contact friction and low air resistance, which combines HTS Maglev and ETT technology. It is necessary to study how the Maglev performance of high temperature superconductors (HTSCs) will change in low pressure environment. In this paper, the applicability of the Power Law Model (PLM) and Flux Flow and Creep Model (FFCM) is compared when studying the Maglev performance related to air pressure, as well as different $J_c$-$T$ models. The simulation model applicable to analyze the Maglev performance of HTSCs in different pressure environment is established. This simulation demonstrates the beneficial effect of low pressure environment on the Maglev performance of HTSCs, and provides an effective approach for HTS Maglev simulation in further lower pressure and low temperature environment.

Keywords: high temperature superconductors, maglev performance, simulation model, low pressure environment