

Abstract

The permanent magnet linear machine with primary excitation (PE-PMLM) is a new type of low cost linear motor derived from the traditional permanent magnet linear machine. It has advantages of high thrust force density, high efficiency, high precision and high reliability, which is suitable to the long stroke field and has high research value and broad application prospect. This speech summarizes the current status and development trend of the PE-PMLM technology. First, the harmonic distribution and thrust generation principle of the PE-PMLM are revealed by the flux modulation theory. Second, the technical points and research progress of various kinds of PE-PMLM are reviewed from the perspective of topology. Third, the high performance control strategy is introduced based on the characteristics of PE-PMLM. Finally, the performance of all kinds of PE-PMLM are comprehensively compared and analyzed.