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STUDY OF SPACE MICROGRAVITY SIMULATION SYSTEM RESEARCH BASED ON THE  
MAGNETIC LEVITATION PRINCIPLE**Abstract**

Aiming at large experimental objects, a new system is designed to simulate the microgravity environment. The core idea is the force separation of the object, the gravity is offset by the electromagnetic force, horizontal motion adopts device on its own. Consider the low speed of aircraft, we adopts the control idea of constant electromagnetic force, the adaptive control strategy of the model and the special electromagnetic suspension structure provide the electromagnetic field with adjustable and movable properties. The microgravity environment has the advantage of a long time, 3D simulated microgravity effect, large range of movement, etc. Test results show that the designed equipment has the simple structure and easy use, and achieves high-precision simulation of microgravity environment, so it has important reference value.