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COMBINED POWER SYSTEMS IN AEROSPACE VEHICLE: DC BUS VOLTAGE STABILISATION  
AND INFLUENCE OF LOADING ON SERVO SYSTEM.**Abstract**

In the aerospace industry, even a slight deviation in the voltage supply can have a significant impact on the motion of an aerospace vehicle. To improve the stability of the power supply system, combined power supply systems are used in the aerospace vehicle which can offer high reliability and high-quality power. The climatic situation has a consequence on a single power supply system, resulting in shortcomings such as an unsteady power supply.

The DC bus voltage of the combined power system is influenced by the loading on the servo system. The servo system is used to regulate the trajectory of the aerospace vehicle. Changes in the state of load affect the DC bus voltage, causing instability and reducing the performance of the electrical system.

Primarily, this paper provides an approach for regulating DC Bus voltage using a bidirectional dc-dc converter with a capacitor, and secondarily an algorithm will be employed to diminish the interference to manage the non-linearity at the output voltage. Moreover, the system's effectiveness will be assessed under numerous servo-loading scenarios.