



The Royal Academy
of Engineering

Research Chairs

Power Electronic Engineering Co-funded by Rolls-Royce

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- To reduce weight and maintenance costs whilst increasing operational flexibility and efficiency, many mechanical systems on board aircraft are being replaced by electrical systems, examples include:
 - Electrical actuation of flight control surfaces rather than hydraulic
 - Electrical environmental control systems rather than bleed air based
- Increasing levels of electrical power require:
 - High performance generators embedded in the engine
 - Power electronics to convert and control the electrical power
 - System integration of multiple generators and more electric loads
- Research at Manchester is focusing on power electronics and system integration of more electric equipment. A 100 kVA emulation of a future small aircraft system is being installed to examine: power quality, energy management, network stability, protection and condition monitoring.

