

## **Sustainable Air Travel – The Challenge for Aero-engine Materials**

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The development of the aero gas turbine has always been closely linked to progress in advanced materials and processing technologies. Combustor and turbine temperatures, and hence power and efficiency, are limited by material capability. Over the past 50 years the development of highly engineered materials systems has already reached the point where today's coated single crystal blades operate at temperatures well above the alloy melting point. Whilst it may look as though alloy development for aeroengines has reached maturity, new challenges demand continuing innovation.

The paper reviews some of today's advanced materials technology, highlights the developments required in the short to medium term and looks at the materials challenges implicit in the radical visions of the future.