



Lichfield Science & Engineering Society

LICHFIELD **GARRICK**
Theatre & Studio

CHAIRMAN

Carol Hannam

PATRON

Mr Ian Dudson CBE

HM Lord Lieutenant of Staffordshire

PRESIDENT

Dr Zsuzsanna Nagy

MD, MA, DPhil

8:00 pm on Wednesday, 11th January 2017
in the Studio Theatre of the Lichfield Garrick, Castle Dyke, Lichfield

MANUFACTURING SINGLE CRYSTAL CASTINGS FOR HIGH PRESSURE GAS TURBINE BLADES

Professor Paul Withey, PhD, CEng, FIMMM, FICME
Rolls-Royce Engineering

Professor Withey was awarded his PhD by The University of Birmingham in 1989 for studies on permanent magnetic materials. He remained at Birmingham as a Research Fellow and Lecturer working in the fields of fracture mechanics and refractory ceramics. In 1996 Paul joined the Rolls-Royce Research and Development Foundry as the refractory ceramic specialist and became its Manager from 2000 to 2001. In 2002 he moved to Derby as Rolls-Royce's Casting Specialist and in 2005 became Rolls-Royce Associate Engineering Fellow in Casting Technology. He is responsible for the technical definition of the casting process and directs Rolls-Royce casting research. Paul is a former chair, and serves on the Council, of the Cast Metals Federation.

The turbine blades in a jet engine are surrounded by gases well above the melting point of the nickel alloy from which they are formed. They are cooled by internal airways but when made by conventional casting processes are subject to creep owing to the huge centrifugal forces on them. Casting as a single crystal allows them to withstand these forces.

This talk will cover the stringent requirements for the blades' physical properties and the development of the process by which they are made.

For further information, please see our website at www.LSES.org.uk
Students and Members Free.

Visitors £5.00. Tickets are not issued in advance, please pay at the door.

Members must sign in. Those signing in before 7:50 pm will have precedence over all visitors.

This lecture is expected to finish by 10.00 pm.