

## Dr Raja Khan BEng, MSc, PhD, CEng MIM3

Research Fellow

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### Contact details

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### About

Dr Raja Khan is a research fellow in Interdisciplinary Research Centre in Materials Processing – IRC since 2011. Before joining IRC, he was working on EU FP7 project entitled 'multiscale modelling for multilayered surface systems' in surface engineering group in school of metallurgy and materials since 2009. He received his PhD in metallurgy from the University of Sheffield (2009), MSc (distinction) in advanced metallurgy from the University of Sheffield (2004) and BSc in metallurgy and Materials from the University of Engineering and Technology, Lahore, Pakistan (1994).

His research portfolio over the past 18 years has been focused on novel materials processing and manufacturing technologies, powder processing, design and development of reusable tooling, design and development of netshape hot isostatic pressing titanium and nickel-base superalloys components through research partnerships with Rolls-Royce plc and Manufacturing Technology Centre (MTC), development of surface engineering processes for coatings and treatments. He has also got expertise in a wide range of experimental techniques, including x-ray diffraction, electron and optical microscopy, hot isostatic pressing, 3D laser scanning, 3D profilometry, mechanical testing, fatigue, heat treatment, surface treatment, nanoindentation, tribology and residual stress measurement. He has written 4 journal papers, one book chapter and presented his research work in more than 20 conferences in the world. Moreover, he has written several research reports, proposals and continually involve in supervision of Master and PhD students.

### Qualifications

Chartered Engineer, 2011

PhD in Metallurgy and Materials, University of Sheffield, UK, 2009

Master in Advanced Metallurgy with Distinction, University of Sheffield, UK, 2004

BSc in Metallurgy and Materials, University of Engineering & Technology Lahore, Pakistan, 1994

### Research

Raja's main research interests comprise powder processing, tooling design and net shape hot isostatic pressing of titanium and nickel base superalloys for aerospace applications.

Advanced surface engineering technologies: plasma technologies (PI3, active screen plasma), Design and development of diffusion treatments as well as PVD coating systems, multi-functional surfaces, nano-composite coatings

Surface engineering design & modelling: duplex and multilayer surface system design, multi-scale modelling of multi-layered surfaces

Design and development of plasma electrolytic oxidation (PEO) process for aluminium, titanium, magnesium and zirconium.

Surface characterisation (surface structures and phase transformations; internal stresses; mechanical properties; adhesion; functional properties and rolling/sliding/fretting wear testing)

### Publications

Chapter in book entitled 'Surface Engineering of Light Alloys – Aluminium, Magnesium and Titanium Alloys', (2010) Woodhead Publishing Ltd, Cambridge, UK

R.H.U. Khan co-auth Surf. Coat. Technol. 206 (2-3) (2011) 522–529

R.H.U. Khan et al Surf. Coat. Technol. 205 (2010) 1679-1688

R.H.U. Khan et al Philosophical Magazine 88:6 (2008) 795-807

R.H.U. Khan et al Surf. Coat. Technol. 200 (5-6) (2005) 1580-1586

