University of Nottingham
UK | CHINA | MALAYSIA

# PhD in Materials Discovery and Coating Development

## University of Nottingham

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| **Qualification Type:** | PhD | **Placed On:** | 20th September 2021 |
| **Location:** | Nottingham | **Closes:** | 15th December 2021 |
| **Funding for:** | UK Students, EU Students, International Students | **Reference:** | ENG1505 |
| **Funding amount:** | £15,609 per annum | | |
| **Hours:** | Full Time | | |

Apply

Advanced Ceramics Discovery, Processing and Modelling for Aerospace Propulsion

**Background**

Dr Tanvir Hussain at the University of Nottingham was awarded a five-year fellowship - funded by the Engineering and Physical Sciences Research Council (EPSRC) - to find new materials, modelling and processing techniques that will overhaul the design and manufacture of advanced ceramic materials for the next-generation of air and space travel.

In support of this exciting funding, applicants are invited to undertake a 3.5 year fully-funded PhD studentship within the Coatings and Surface Engineering Group, a dynamic group of researchers who place equity, diversity & inclusion at the core. The University of Nottingham has a Centre of Excellence in Ceramic Coatings with state-of-the-art facilities.

**The PhD Project**

Aero engines manufacturing is a growing industry with an estimated annual production of ~228,000 engines by 2030. The new composition and microstructure for coatings, such as Thermal Barrier Coatings (TBCs) on nickel-based superalloys and Environmental Barrier Coatings (EBCs) on ceramic matrix composites (CMCs), are critical for sustainable aviation. The aerospace industry needs sustainable materials and processing solutions to meet NetZero2050 targets.

This PhD will involve the discovery of new materials in a materials discovery apparatus (MDA) informed by artificial intelligence, the development of new methods for spray feedstock, the study of coatings through advanced in-situ microscopy techniques and testing under high-temperature (>1200 °C) conditions. We have world leading characterisation facilities in materials science at the Nanoscale and Microscale Research Centre (nmRC).

**Qualification:**

This is an excellent opportunity for enthusiastic first or 2.1 class graduates in materials/ mechanical/chemical/ physics/ chemistry to build strong knowledge in fundamental materials science while working with eight international academic and industrial partners.

**Funding:**

For UK applicants, the PhD studentship will cover full Home tuition fees and a tax-free stipend at EPSRC rate of £15,609 per annum. For international and EU students, only full tuition fees will be covered.

**How to apply:**

Applications, with a detailed CV and a cover letter explaining suitability, should be sent directly to Dr Tanvir Hussain (tanvir.hussain@nottingham.ac.uk).

**Closing date: Until Filled**

**Advert information**

**Type / Role:**

PhDs

**Subject Area(s):**

Physical & Environmental Sciences
Chemistry
Materials Science
Engineering & Technology
Mechanical Engineering
Chemical Engineering
Other Engineering

**Location(s):**

Midlands of England