

OXFORD SIGMA JOB DESCRIPTION

01/12/2021

JOB TITLE:	Materials Engineer
JOB LOCATION:	Harwell Science & Innovation Campus, Oxfordshire, UK
HOURS:	Full-time (37.5 hours per week)
SALARY:	Competitive
JOB REFERENCE:	OS-JA-MATENG-01-V1

1. COMPANY DESCRIPTION

About Oxford Sigma (OS): Oxford Sigma is a research and development company that seeks out novel and innovative nuclear technologies that could have the potential to become disruptive technologies to significantly change the course of the world’s energy production. OS’ main focus is on nuclear fusion energy, nuclear fission energy, and large science facilities technology. OS has innovative patent pending technology in fusion components and materials science with the aim of supporting the commercialisation of fusion and advanced fission energy. OS stands out among nuclear and scientific engineering companies as it is a small company owned and operated by scientists and engineers. The company roots are within Oxfordshire with its headquarters at Harwell Campus.

In addition to OS technology development, the company has established itself as a highly technical service supplier for the advanced nuclear and fusion energy markets. OS has become part of the emerging supply chain ecosystem within the UK, USA and EU for fusion energy. The company supports various national laboratories (USA, UK), governments, design companies (fusion and fission), and provides technical services on various frameworks, such as the Office for Nuclear Regulation Technical Support Framework, European Spallation Source Mechanical Engineering and Design Framework, UK Atomic Energy Authority (UKAEA) Engineering Design Services Framework, and the UKAEA Tritium Engineering Framework.

The company is a member of the [Fusion Industry Association \(FIA\)](#), an international coalition of companies working to electrify the world with fusion energy, and is a contributing member to the American Society of Mechanical Engineers (ASME) Boiler & Pressure Vessel Code (BPVC) nuclear design code committees, and UK-based [The Shielding Forum](#).

2. JOB DESCRIPTION

OS is expanding its technical team and is looking to recruit a permanent full-time Materials Engineer. This is an exciting time for OS as the company is expanding the core business practice into developing patent pending technology for solutions that could accelerate the commercialisation of fusion energy.

In conjunction with OS's technology development projects, the company is involved in various on-going projects that the candidate will participate in; these include the materials development of breeder blankets, divertors, and first-wall technologies for fusion energy. The candidate will participate in work packages with private fusion companies, such as supporting materials development of radiation shielding designs. The candidate will also support the on-going regulatory application submissions that are ongoing with private Generation IV nuclear companies with a focus on structural integrity and materials development. In addition, it is expected that the candidate will support, and possibly lead, jobs provided through the various frameworks and contracts. Looking ahead, the candidate will be encouraged to seek out new business opportunities to develop the company further; this will be part of an on-going company effort.

The candidate responsibilities will include:

- Developing OS technology in materials for breeder blankets, first-wall, and divertor technology with a focus on commercialisation through engineering, modelling and simulation testing.
- Joining the consultancy team and assisting with the engineering work through working with private fusion energy companies, national laboratories, and nuclear fission companies.
- Being responsible for allocated budgets and assisting with grant or investment submissions.
- Working in a team, as well as independently.
- Being eager to develop skills in mechanical, thermal, and system integration engineering.
- Being naturally inquisitive and having the ability to work collaboratively with a range of clients and skills levels.
- Pushing scientific and technical boundaries.
- Representing the company at international conferences, which could include public speaking.
- Supervising/ mentoring junior employees and collaborators.

3. QUALIFICATIONS/EXPERIENCE

The candidate will have the following qualifications/experience:

- Bachelors or Masters in Mechanical, Aerospace, Chemical, Materials, Nuclear, or any other related engineering topics, or demonstrable equivalent experience.
- 5 or more years' experience in materials science/engineering and/or materials design.
- Working knowledge of materials-based systems, such as austenitic, bainitic, ferritic steels, nickel-based alloys, and others.
- Working experience in CAD.
- Excellent verbal and written communication and presentation skills.
- Ability to thrive in a challenging environment.

Desired qualifications/experience:

- PhD in Materials Engineering / Science or Nuclear / Fusion Energy.
- Knowledge of nuclear codes and standards (such as ASME or RCC-MRx).
- Experience in neutron transport codes, such as OpenMC and Monte Carlo N-Particle (MCNP).
- Knowledge in nuclear/fusion materials, such as tungsten, silicon carbide, lithium-based materials, reduced-activation materials.
- Knowledge of lithium-based coolants, molten salts, or gas cooled materials properties, uses, and applications.
- Knowledge of radiation damage by neutrons and its effects on common structural and functional materials.
- Experience in computational fluid dynamics, magnetohydrodynamics, or structural.
- Experience working with object-oriented programming languages typical in scientific environments (such as Python and C++).

Candidates with a lesser amount of experience, such as recent graduates, are encouraged to apply.

4. ADDITIONAL INFORMATION

OS is a dynamic, fast-paced, and exciting company that is working on some of the world's most technically challenging endeavours, such as fusion and advanced fission energy. The company is based at the world-leading science business park, Harwell Science and Innovation Campus in Oxfordshire, which provides a rich, engaging environment with fellow similar highly technical companies who work in the space, health, and energy sectors.

The benefits that OS provides include:

- A competitive salary.
- Flexible working location (office and home-based work).
- Optional compressed working weeks.
- 28 days paid annual leave.
- Workplace pension scheme.
- International conference attendance.
- Encourage scientific publications and patent development.
- Wide range of career development opportunities (e.g., professional development, internal promotions and technical training courses).
- We support employees if they want to be (or are) part of the military reserves.
- Assist and support the candidate's chartership progression with the appropriate chartership body.

5. APPLICATION

Send hr@oxfordsigma.com an email with the Job Reference number in the subject line, which contains your CV and cover letter.

The application deadline is **17:00 Tuesday 04th January 2022**.