



## THE POST

**College/Service:** [Technical Services](#)

**Post/Job Title:** **Experimental Officer (Raman Nanotheranostics Labs)**

**Reference number:** **P61705**

**Grade:** **F**

**Responsible to:** **Prof Nick Stone**

**Responsible for:** **Raman Nanotheranostic Labs and Associated Experiments**

### **Job Description**

Professor Nick Stone, at the University of Exeter, was successfully awarded a £7.1M EPSRC Healthcare Technologies Programme, to lead a consortium from a number of prestigious universities, to explore novel nanotechnologies for the future detection, diagnosis and therapy of cancers. The programme will address the unmet clinical need of immediate and effective non-surgical cancer detection and diagnosis with high specificity and sensitivity, simultaneously coupled with personalised treatment in a single effective non-surgical procedure. Such a solution does not currently exist, leading to delays in diagnosis, unnecessary mortality, ineffective treatments, unnecessary or over treatments with associated risks and significant financial burden to the NHS.

***Vision and ambition: To create the next generation of healthcare platform technologies: Raman Nanotheranostics (RaNT) that provide safe, accurate, cost-effective, point-of-care diagnosis, patient-specific disease stratification and targeted treatment in one procedure.***

The RaNT Programme (PG) brings together leaders in their fields from the University of Exeter (lead partner), University of Cambridge, London School of Pharmacy (UCL) and UKRI STFC Rutherford Appleton Laboratory.

The University of Exeter combines world class research with excellent student satisfaction at its campuses in Exeter and Cornwall. It is a member of [the Russell Group](#) of leading research-intensive universities. This EPSRC Healthcare Technologies Programme provides a strong fit with our strategic vision at the University, benefiting from the University of Exeter's research strengths in both Physics and Healthcare. The University has recently invested over £350M in its Science base, including the £55M multi-disciplinary Living Systems Institute, physically linked by a bridge to the new RaNT labs in Physics.

Based at the University of Exeter, the role-holder will help to establish and maintain a world-class research facility and support the RaNT programme of activities in surface enhanced spatially offset Raman spectroscopy (SESORS) and photothermal therapy using nanoconstructs. Initially the Experimental Officer (EO) will help to develop the new labs for the RaNT programme, followed by the maintenance of the research programme by undertaking relevant inter-disciplinary scientific studies in conjunction with academics, postdocs and PhD students working on activities aligned with the Programme. Activities will range from optical design, to Raman spectroscopy and imaging, photothermal therapy, data collection, instrument automation, to cell culturing, and cellular viability studies, as well as lab training and safety oversight.

## **Key responsibilities**

1. Work with the investigators the EPSRC Raman Nanotheranostics grant to establish a leading facility for developing and testing novel methods for combined SESORS and photothermal therapy.
2. Establish the appropriate lab infrastructure, the procurement of the apparatus and determine how it will be located within the RaNT laboratories.
3. Lead the integration of different items of apparatus (including lasers, external optics, microscopes, and electronic measurement instrumentation), with the generation of suitable control software, to form the experiments required for the delivery of the project.
4. Provide a point of contact for training and support for new students, postdocs and visiting scientists.
5. Support the running and oversight of the RaNT cell culture labs.
6. Ensure that the operation of the facility is compliant with statutory safety requirements.
7. Maintain the facility website and ensure that experimental data generated by the facility is backed up and made available in accordance with Research Data Management requirements.
8. Remain informed of the state-of-the-art in Biomedical SERS, Deep Raman techniques, photothermal therapies, coherent Raman imaging.
9. Act as the laser safety officer for the facility and work with the University's designated laser safety lead to ensure that the facility is fully compliant with H&S and laser safety regulations.

## **Main Duties and accountabilities**

### **Service Delivery (Research Support)**

- Establish a service to support and develop the ongoing experiments within the envelope of the RaNT Programme.
- Support the careful design and delivery of cross-disciplinary experiments involving a range of cutting edge physics, chemistry and biology.
- Create a positive image of Technical Services by being prompt in responding to requests.
- Work with partners across the University to forecast the implications of new legislation on the facility and develop procedures to ensure compliance.
- Set and maintain a high level of service delivery within the facility in support of research and commercial activities, including establishment of performance indicators.
- Pre-empt changes in stakeholder needs and anticipate future requirements.
- Maintain the overall service quality, balancing different demands.
- Ensure others have the support they need to fulfil their role.
- Provide regular and routine introductions.
- Take responsibility for ensuring that technical support provision meets the needs and criteria necessary to achieve the academic and commercial goals of the facility.
- Liaise with key stakeholders and build extensive relationships to ensure service provision is comprehensive and fit for purpose.
- Proactively engage with academic colleagues and service users to ensure short-term and long-term needs regarding equipment and resources are thought through during the planning of activities, and suitable alternatives or accommodations made.
- Provide assessment of an activity to service users, to ensure it meets agreed specifications as identified with academic colleagues in advance.
- Provide overall point of contact for the facility in respect of advice and define rules and policy regarding users and access arrangements.
- Plan the use of the facilities with academic staff and establish and cultivate long-term relationships with academic staff and other professional service teams.
- Create an environment in which innovative, efficient and effective ways, employed by the technical team, flourish to reflect the values of the organisation and facility.
- Responsible for liaising with academic staff to determine the parameters of input provided by technical staff to service users.

### **Communications**

- Receive, understand and convey complex conceptual ideas and information that may be highly detailed, technical or specialist. This may include material that would not be immediately understandable to those outside the area of work, or combines topics drawn from a number of disciplines.
- Support and engage in the publication of research findings from the RaNT programme.

### **Teamwork and motivation**

- Understand and manage the inter-relationships between different teams and their impact on the overall aims of the facility.
- Help break down barriers between teams.
- Build beneficial working relationships across teams.

### **Liaison and Networking**

- Interact on a day-to-day basis with the RaNT Director and Co-investigators regarding strategic level information that significantly impacts on the RaNT Programme.
- Influence significant events, or undertake collective decisions across a significant part of the RaNT facility as part (or as lead) of a working group.

### **Decision Making, Processes and Outcomes**

- Work with the Lead Academic, Head of Technical Services and College Executive Groups (CEG), to allocate significant resources such as space, and purchase of equipment that will affect service delivery on an ongoing basis.
- Work with the Heads of Service and College Executive Groups to implement decisions that need to be incorporated in the Technical Services business plan.
- Provide business intelligence information that will influence the development of college business plans.
- Act as a point of contact within the institution to provide feedback regarding highly specialist techniques and procedures and act as a catalyst to further the understanding of others.

### **Leadership, Planning and Organising Resources**

- Work on their own as a proactive team member, act of point of contact and mentor team members.
- Help to manage budgets and monitor expenditure.
- Ensure all team members have access to policy and procedures relevant to individual and team working.
- Ensuring that all team members understand the implications of best practice and any relevant learning needs are identified, and met, to ensure compliance with organizational policy and procedures.
- Act as an authoritative point of contact within the team, and outside of the team, with regard to specialist knowledge or expertise on policy or procedural issues.

### **Initiative and Problem Solving.**

- Resolve problems where there is a lack of precedent that calls for innovation and creative thought to develop appropriate options.
- Anticipate problems and make projections.
- Initiate solutions that take into account the strategic direction of the College and Technical Services.
- Spends a high percentage of time working within or leading teams where the purpose is to 'hot bed' new ideas and creativity is required over short periods for a specific aim that is considered highly original.

### **Analysis and Research**

- Generate original ideas to build on existing concepts.
- Generate new concepts and methodologies and to develop new practices in teaching, research and commercial activities. This may involve liaison with external bodies to identify future requirements.

### **Sensory and Physical Demands**

- Use physical and sensory abilities and skills to perform complex tasks at a level which would require either knowledge of relevant methods or routines.

### **Working Environment**

- May be required to assess the potential degree of risk in the situation and take action in anticipation of that risk, assessing risk assessments and COSHH assessments (as required).

- Frequently make safety related decisions in a high risk environment. This may take place in a high risk laboratory/workshop environment where you will be required to follow and enforce safety procedures.
- Actively contribute to continuous improvement strategies.
- Implement, adhere to and promote relevant Work Health and Safety policies/guidelines, University Environmental Sustainability and waste management guidelines/policy and carry out any responsibilities outlined in Safety Management Plans and H&S audit recommendations.

### **Pastoral Care and Welfare**

- Aware of the support networks for both themselves and their team/the individual.
- Encourage and promote behaviour consistent with University's values and standards, equality and diversity standards and guidance, and create a positive work environment.

### **Personal and Team Development**

- Proactive personal and professional development including completion of mandatory training, skills courses and specialist training.
- Encourage development activity according to the needs of the individual or group; identify current capabilities and future needs; define the performance standards required; identify appropriate developmental activity; assess the application of learning; and give feedback and guidance on overall performance.

### **Knowledge and Experience**

- Apply a breadth and depth of experience showing full working knowledge and proficiency of their own area of expertise.
- Act as a point of reference to others.
- Demonstrate continuous specialist development, acquiring and refining skills and expertise in new or related areas through undertaking and encouraging internal and external development activity.

**This job description summarises the main duties and accountabilities of the post and is not comprehensive. There is a clear expectation that the post-holder will support other areas of Technical Services and will undertake other duties of similar level and responsibility.**

## **Person Specification**

| <b>Essential</b>   | <b>Desirable</b>   |
|--|--|
| <b>Attainments/ Qualifications</b>   |  |
| PhD or equivalent qualification / experience in a related field of study.  | Have a track record of the application of Raman spectroscopy to biomedical applications.   |
| <b>Skills and Understanding</b>  |  |
| <p>Experience in the development of optical spectroscopy / microscopy and associated instrumentation.</p> <p>Possess sufficient specialist knowledge in the discipline to develop research projects and experimental methodologies.</p> <p>Record of research output in nationally recognised publications.</p> <p>Familiarity with a range of laboratory technologies including lasers, optics, electrical measurement and instrumentation.</p> <p>Excellent written and verbal communication skills.</p> | <p>Have a track record of SERS / SORS.</p> <p>Have a track record in novel photothermal techniques.</p> <p>Have some experience of hands on cell culturing.</p> <p>Record of research output in internationally leading journals that relates to the scientific aims of the RaNT programme.</p> <p>Programming skills applied to instrument control and data analysis.</p> |
| <b>Prior Experience</b>  |  |
| <p>Experience of undertaking research projects and working with academic research teams that include PhD students, postdoctoral workers, and permanent academic staff.</p> <p>Evidence of successful collaboration with internal and external groups.</p>  |  |

## **Terms & Conditions**

Our Terms and Conditions of Employment can be viewed [here](#).

## **Further Information**

Please see our [website](#) for further information on working at the University of Exeter.