Senior Postdoctoral Research Associate – CMS

1 JOB DESCRIPTION

Faculty / School or Division: Faculty of Science and Engineering/School of Physics
Faculty/School or Division Address: H.H. Wills Physics Laboratory, Tyndall Avenue, BS8 1TL

Job Family:	**Research and Teaching**		
Grade/Pathway:	**Grade J/Pathway 2**	**Salary range:**	**£45,641 - £51,258 per annum**
Hours of work:	**1 FTE**	**Contract type:**	**Fixed term until 30/9/27**
Work pattern:	**Monday – Friday**	**Vacancy Reference Number: ACAD108734**	

1.1 Main Job Purpose

The postholder will participate in the upgrade of the CMS tracker as part of the Bristol group, including the integration and commissioning of the detector and readout systems.

1.2 Main Statement of Responsibilities

Research Responsibilities

- Play a leading role in the Bristol particle physics group's activities on the Phase 2 upgrade of the CMS tracker.
- Participate in the integration and testing of the upgraded tracker and associated electronics components and systems.
- Work with the Bristol CMS group (Prof Sudarshan Paramesvaran, Prof Joel Goldstein, Prof Henning Flaecher, Prof Jim Brooke, researchers, technical staff and students), and UK and international collaborators
- Maintain academic standards and freedom, and work in accordance with University policies (e.g. equal opportunities, ethics, health and safety policies)
- Group support tasks, to be agreed with CMS group leader
- Supervise and advise research students
- Some level of outreach, knowledge exchange and undergraduate teaching is encouraged
- Undertake relevant training and development activities to develop capacity for taking on wider responsibilities to support career development
- Engage effectively in the University's Staff Review and Development process and develop, with advice, an awareness of their own professional development needs and a personal

development strategy, engaging with continuing professional development appropriate to the role
- Consistently act as a good citizen, actively participating fully in the daily working life of the School of Physics

Administration Responsibilities
- None

Teaching Responsibilities

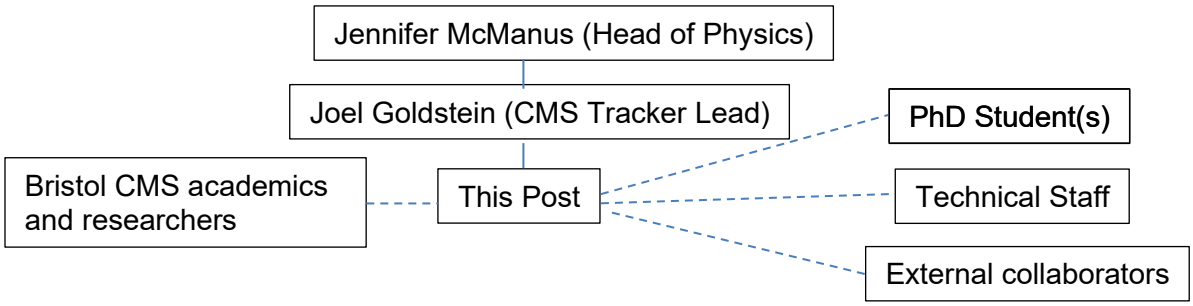
As this role is a Pathway 2 (Research) role, there are no formally specified teaching duties required of the role-holder. However, other commitments permitting, the role-holder may be given development opportunities to undertake activities such as teaching on Masters and Doctoral programmes and/ or supervising MSc dissertations within the School of Physics, as appropriate.

1.3 Relationships

Line manager: Professor Joel Goldstein, Bristol CMS tracker lead

Line manager to (where appropriate): None

1.4 Organisation Charts



1.5 Job Hazards/Safety Critical Duties (Pre-employment health screening)

NOT APPLICABLE

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2 PERSON SPECIFICATION

2.1 Relevant Experience, Skills and Knowledge

Essential
- Experience with particle physics data analysis
- Knowledge of C++ and Python

- Experience with maintenance and operation or development of particle detectors (including associated electronics)

Desirable

- Experience with silicon tracking detectors
- Experience with fast data acquisition and/or triggering using FPGAs
- Experience with firmware programming (VHDL/Verilog/HLS)
- Experience with real-time control and data acquisition software
- Experience of integrating, commissioning and debugging complex electronic systems

2.2 Relevant Qualifications

Essential

- A PhD or near completion, or equivalent research experience in an academic or industrial setting equivalent to a PhD, in particle physics or other relevant subject

2.3 Communication and Interpersonal Skills

Essential

- Good written and oral communication skills
- Independent and self-motivated
- Ability to work co-operatively in a team

Desirable

- Experience of supervising under- and/or post-graduate students in a research environment
- Experience in leading and coordinating projects

2.4 Additional Criteria

Essential

- Willingness and motivation to learn new techniques
- A motivated proactive approach to research and problem solving
- Ability to engage in flexible work practices
- Willingness to travel, within the UK, to Switzerland, and elsewhere

3 CAREER PATHWAY AND OTHER RELEVANT INFORMATION

3.1 Career Pathways

All members of academic staff have a clear career pathway involving a series of levels with distinct role profiles, each with its unique requirements. Each profile sets out what is expected of an academic at the particular level. The role profiles also set out a collection of competencies expected for each level. Promotion to the next level may occur after these competencies have been attained in conjunction with the expectations outlined in the Promotions Process and Academic Promotions Framework (APF) applicable to the role. .

The academic pathways are as follows:

Career Pathway One - academic roles that combine teaching, research and administrative duties.

Career Pathway Two - academic roles focusing on research and associated administrative duties.

Career Pathway Three – academic roles focusing on teaching and associated administrative pathways

This post is located on Pathway Two. Role Summaries setting out what is expected of an academic at each particular profile level on pathway two can be found below. Please note that an appointment may be made at any level of the pathway.

A schematic diagram of the career pathways can be found at http://www.bristol.ac.uk/hr/grading/academic/.

The University has two procedures for promotions depending on the level of promotion being applied for as follows:

Promotion up to Senior Lecturer / Senior Research Fellow
Promotion to Associate Professor or Professor

The procedure for Promotion up to Senior Lecturer / Senior Research Fellow describes the process for anyone on the academic career pathways and is based on the concept of readiness as determined with managers using the Academic Promotions Framework (APF). Eligibility for making a case for promotion is subject to:

1. Having a contractual expectation and meeting the performance requirements described in the Promotion up to Senior Lecturer / Senior Research Fellow process
2. Completion of a full year of service following appointment and successful completion of their Initial Service Review (ISR)
3. Meeting the expectations set out in the CREATE policy for those with teaching responsibilities (pathway 1 and 3), e.g. those seeking promotion to Senior Lecturer should achieve and have been formally notified of their Fellowship (ratified outcome) through the University's CREATE scheme before applying

The procedure for Promotion to Professor covers staff for promotion to profile level d2 (Associate Professor) and profile level e (Professor) on all pathways in the Academic Career Pathway framework.

3.1.1 Role Summaries

Research Associate (Level a)
Role holders at this level are concerned with *assisting* an individual research leader or team to conduct a particular study (or group of studies). They will generally be involved in data generation and/or collection using standard and well-defined methods developed by others. They will be working under close supervision by, and direction from, a more senior researcher, who will be ultimately responsible for the project. This may be the entry level for some staff who are expected to train and/or develop to take on more senior researcher roles. Role holders will be provided with academic and pastoral support within the department (including counselling on realistic career opportunities) and training will be available designed to develop their competences and to prepare them to take on more responsibilities associated with a higher grade.

Senior Research Associate (Level b)
Role holders at this level will be experienced and professional researchers (or have considerable professional experience) and will be specialists in a particular area or methodology, drawing upon knowledge gained from postgraduate research and/or working within a Level a role. They will be *associated* with a particular project (or projects) and will contribute ideas, and/or enhancement of techniques or methodologies. They will be expected to do some writing for dissemination outside the Department. They will still be working under supervision, but will be expected to take significant initiatives in their work and consult with the Principal Investigator over the details of the project. They may, where practical, contribute to the department's teaching, through supervision of projects, overseeing practical classes, or taking small group classes. They will be provided with academic and pastoral support within the department and training will be available designed to develop their competences (including counselling on realistic career opportunities) and prepare them to take on more responsibilities associated with a higher grade.

Research Fellow (Level c)
Role holders at this level will have substantial experience of research (normally not less than six years). They will initiate and take responsibility for some research projects and may be Principal Investigators or, where a Research Council does not permit this, act as though they were Principal Investigators. They will be involved in administration relevant to their projects (e.g. helping to prepare bids for research funding), managing other researchers and monitoring research budgets. They will be expected to be undertaking research individually and/or collectively and to be advancing the state of knowledge and understanding within their particular area of expertise. They will be publishing regularly in high quality outlets. They are likely to provide some teaching support for the department (consonant with the terms of their funding). They will be expected to be establishing a growing reputation within their particular research field and academic discipline and to be developing and demonstrating intellectual independence.

Senior Research Fellow (Level d)
Role holders at this level will have extensive experience in research and research management. They will normally be Principal Investigators, leading collaborative research bids and research teams, or driving forward innovative research themselves. They will be involved in scholastic projects (e.g. editing journals and academic books), and be making a significant leadership and/or management

contribution within their department or the wider university, to be participating in national/international academic networks and conferences. They may be transferring their knowledge through some teaching and/or supervision to undergraduate or graduate students (consonant with the terms of their funding). Role holders at this level will be independent researchers and will have an established national and growing international reputation within their academic discipline generally and research field in particular.

Professorial Research Fellow (Level e)

Role holders at this level will have very extensive experience of research leadership and related management/administration. They will enjoy a wide recognition for their expertise within the academic community internationally (as evidenced by conference invitations, journal editorships, office holding in specialist groupings, associations with appropriate Research Councils etc.). They will have made recognised and significant contributions to the developing knowledge and understanding of their research area. They will already have responsibilities for the creation, initiation, development and overall management of significant research programmes. They will 'profess' their discipline within the Department, as appropriate and consonant with the terms of their funding. They may also carry significant leadership roles within the Faculty or University.

3.2 Additional Statistical Information. This can also include any other relevant contextual or specific role or team information not included elsewhere

None

3.3 Relevant Physical and Environmental Information

None

3.4 Key Contacts

Contact Type	Purpose of Contact
• Professor Joel Goldstein joel.goldstein@bristol.ac.uk	General enquiries