

## Research Associate LHCb

### 1 JOB DESCRIPTION

**Faculty / School or Division:** Faculty of Science / School of Physics

**School Address:** HH Wills Physics Lab, University of Bristol, Tyndall Avenue, Bristol, BS8 1TL

<b>Job Family:</b>	<b>Research and Teaching</b>		
<b>Grade/Pathway:</b>	<b>Grade I/Pathway 2</b>	<b>Salary range:</b>	<b>£33,199 – 37,345 per annum</b>
<b>Hours of work:</b>	<b>35</b>	<b>Contract type:</b>	<b>Open-ended with fixed funding currently until 30/09/2022</b>
<b>Work pattern:</b>	<b>Full-time</b>	<b>Vacancy Reference Number: ACAD104107</b>	

#### 1.1 Main Job Purpose

The Bristol group plays a leading role in LHCb data analysis, with a special focus on complex multibody decays, related to CP violation in beauty and charm, rare decays, and amplitude analyses. The Bristol group also has important responsibilities for installing and maintaining the upgraded LHCb detector, and is developing technologies for future upgrades, in particular of the particle identification system. The post holder would play an important part in all aspects of this effort, with a focus on data analysis and computing, and the opportunity to co-develop the group's future physics programme.

#### 1.2 Main Statement of Responsibilities

##### Research Responsibilities

- Analysis of LHCb data (including opportunities for software development in modern, highly parallel computing environments)
- Support the operation of the LHCb RICH
- Contribute to the development of the novel TORCH time of flight system.

##### 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/MSci dissertations within the School of Physics, as appropriate.

#### 1.3 Relationships

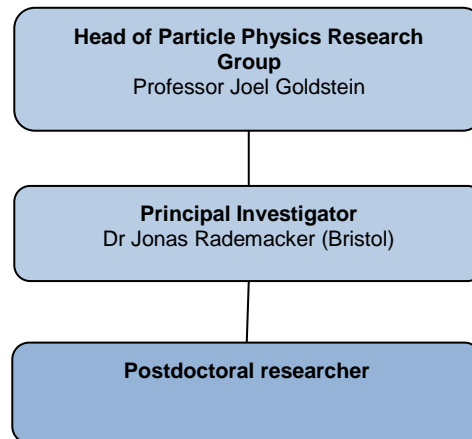
**Line manager:** Prof Jonas Rademacker

**Line manager to (where appropriate):** n/a

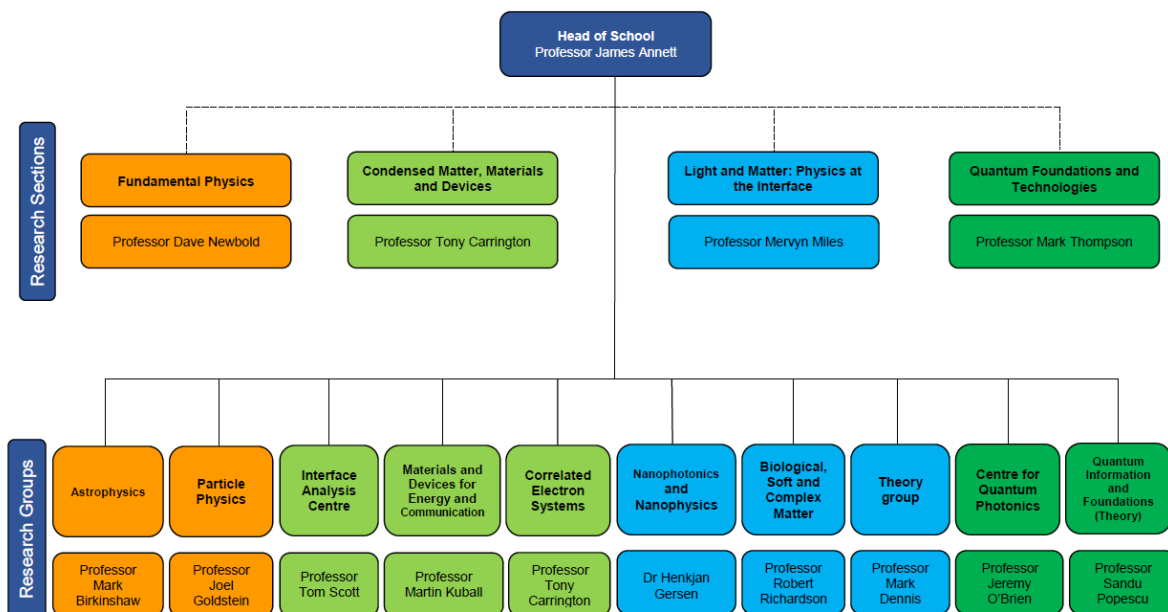
**Internal contacts: Members of the University of Bristol Particle Physics group.**

**External contacts: Collaborators on the DUNE experiment.**

### 1.4 Organisation Charts



School of Physics research structure 2016-17



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

The following duties are an intrinsic part of the role and any offer of employment will be conditional upon satisfactory health screening by the University Occupational Health Service:

- Not applicable.

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## 2 PERSON SPECIFICATION

### 2.1 Relevant Experience, Skills and Knowledge

#### *Essential*

- Experience with data analysis in particle physics.
- Competence in at least one programming language.

#### *Desirable*

- Expertise in flavour physics.
- Expertise in amplitude analyses analysis / Dalitz plot analysis.
- Expertise in analysing rare decays, and using them to constrain Wilson coefficients.
- Expertise in C++ and python.
- Experience with software environments such as CUDA, TensorFlow.
- Experience with relevant software packages such as ROOT, and LHCb software packages.

### 2.2 Relevant Qualifications

#### *Essential*

- Have or be about to gain a PhD in a relevant field.

#### *Desirable*

- Have or be about to gain a PhD in Particle Physics.

### 2.3 Communication and Interpersonal Skills

#### *Essential*

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

### 2.4 Additional Criteria

#### *Essential*

- A motivated, pro-active approach to research and to problem solving.
- Willingness (where constraints such as caring responsibilities allow) to travel, both in the U.K. and abroad, including overnight stays.

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## 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. Progression or promotion to the next level will occur after these competencies have been attained and where a role at the higher level is available.

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/>.

For Pathway Two roles progression to the next level will only occur where a role has been identified as being eligible for progression, having reached the relevant point on the salary scale and after the relevant competencies have been attained. A progressable role is a role at Level b or Level c that has been determined as being eligible for progression by the Head of Department, based on departmental needs, priorities and funds. Individuals in progressable roles at Level b or Level c are expected to develop their skills, knowledge and experience in order to ultimately progress to Level c or Level d, as applicable. A non-progressable role is one either at Level a (which are not subject to formal progression arrangements, although there may be opportunities to develop into a Level b role, based on departmental needs, priorities and funds), or at Level b or c for which the Head of Department has identified an ongoing need at that particular level. Movement to Level e will be by promotion only.

#### 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.