To: N. Jennings (Vice Provost, Research and Enterprise) March 22, 2019
From: K. Long (Director, Centre for the Clinical Application of Particles)

Centre for the Clinical Application of Partices; activity report March 2019

This report covers the period from 17$^{\text{th}}$ January 2019. As usual the reports includes two key aspects of the Centre's activities over the reporting period.

1 Post-graduate recruitment

Previous reports have described the agreements that have been reached with CERN and GSI to collaborate on aspects of the CCAP's research programme. Each laboratory has a scheme by which a graduate student can be supported while on secondment to the laboratory; CERN has a Doctoral Student Programme while GSI is able to support post-graduate students via its Associate Scientist programme. Each of these schemes provide the majority of the funding required to support a graduate student. Therefore, applications were solicited for two PhD positions. This is the first time the CCAP has explicitly advertised places in its graduate programme.

Applications to both the CERN Doctoral Student Programme and the GSI Associate Scientist programme must be made by a named student who is already in receipt of an offer of a position at a collaborating institute. And, the recruitment at each of the laboratories is six-months out of phase with the graduate-student recruitment process in the Department of Physics. The advertisement for the two positions [1] made clear that a student offered a place would be supported in their application to the relevant laboratory and that the student would be supported in the search for the additional funding required to cover fees and the stipend for the periods when the student is resident at Imperial.

The recruitment of students into the CCAP programme was administered through the High Energy Physics (HEP) Group, The HEP Group received a total of 68 applications from prospective PhD students. Of these, a total of 12 students (18% of the applicants) expressed an interest to work on the development of CCAP's medical-physics programme; of these, 4 (6%) directly expressed their desire to be considered for one of the CCAP positions.

Interviews were carried out by the HEP Group's PhD recruitment panel. The quality of the applicants for the medical programme was found to be equivalent to those that had applied for the particle-physics programme. Two offers were made as soon as the interview programme had concluded; one for entry into the programme with CERN, the other for the GSI programme. Both offers were made, and accepted, contingent on funding being secured. A third candidate has been held in reserve.

At the time of writing, an application to the Class of 64 Scholarship programme has been made to secure the additional funds required to support the top candidate. This outstanding candidate has also been selected for submission to the President's Scholarship scheme. In parallel, the candidate will make an application to the CERN Graduate Student programme. The second student to whom an offer was made withdrew his acceptance of the offer after considering the funding uncertainty. He is still being considered for one of the HEP Group's STFC quota studentships. The decision on whether the reserve candidate should be offered the position to work on the GSI programme is under discussion. The likelihood of securing the resources necessary to pay the fees and to support the student while she is at Imperial will be the critical factor in deciding to make the offer.

Despite the issues with the recruitment outlined above, I believe that the first formal recruitment of students into the CCAP graduate programme, has been a success.

2 Diagnostics workshop 2019

On the 19^{th} March 2019 the first CCAP workshop on diagnostics for low-energy ion beams (Diagnostics workshop 2019 [2]) was held in the Sir Alexander Fleming Building. The workshop was conceived and organised by A. Kurup (Physics) and was executed using resources he had secured from the STFC Impact Accelerator Account. The meeting was organised to maximise discussion time and included short talks describing the Centre and aspects of the Centre's detector-development programme. Talks were also contributed by delegates from the STFC/RAL Central Laser Facility and the University of Munich. 3 poster presentations were made on the work being carried out at Imperial, Liverpool, and UCL. Hamamatsu contributed a small exhibition of photo-sensors. The delegates were also given a tour of the CCAP lab and the Plasma-group's laser facility, both in the basement of the Blackett Laboratory.

Objectives:

- To gauge interest in, and potential market for, novel, robust and inexpensive diagnostics that are being developed as part of the CCAP radiobiology programme; and
- To provide an opportunity for CCAP personnel to network with colleagues in the UK and overseas with a view to identifying opportunities for collaboration and increasing the visibility of the Centre at home and overseas.

Outcomes:

- The meeting was a success. There were 25 delegates; 19 were were from UK universities, 3 from the national laboratories (the CLF and PPD at RAL), 1 from the UCL Hospitals, 1 from Hamamatsu UK, and 1 from the Ludwig Maximilian University of Munich.
- Informal discussions at the meeting led to the agreement to work with personnel from the Central Laser Facility at RAL on the development of a proposal to the recent EPSRC "Transformative Healthcare Technologies for 2015" call. A visit to discuss collaboration with LMU Munich, will also be arranged.

References

[1] **CCAP** Collaboration, "Opportunities/PhD opportunities: Novel techniques radiobiology and radiotherapy." `https://ccap.hep.ph.ic.ac.uk/trac/attachment/wiki/Opportunities/PhD%20opportunities/2019-CCAP-PG-opps-final.pdf`, 2019.

[2] **CCAP** Collaboration, "Diagnostics Workshop 2019." `http://www3.imperial.ac.uk/newsandeventspggrp/imperialcollege/naturalsciences/physics/clinicalapplicationofparticles/eventssummary/event_14-2-2019-18-5-47`, 2019.