University of Cambridge
Department of Physics

Cavendish Laboratory
J J Thomson Avenue
Cambridge CB3 OHE

Bryan Webber
Emeritus Professor of Theoretical Physics
E-mail webber@hep.phy.cam.ac.uk

Direct line : 1223 337269
Laboratory : 1223 337200
Fax : 1223 353920

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Dear Colleagues,

It is a pleasure to write in strong support of the application of my former graduate student **Oluseyi (Seyi) Latunde-Dada** for a postdoctoral position.

Seyi was an undergraduate here at Cambridge and was consistently amongst the best few physics students, in a class of over a hundred. He is exceptionally intelligent, motivated and hard-working, and made excellent progress in his research, completing in less than three years three major projects, which formed the basis of his PhD thesis.

Seyi was very keen to work on theoretical topics that would have direct relevance to experimental results, so I gave him the problem of broadening the applications of the "MC@NLO" method introduced by Frixione and myself in 2002. This provides a way of combining fixed-order QCD calculations with a parton-shower approximation to higher orders, without any double counting. In addition to the approximate treatment of higher orders, this allows the results to be interfaced to a hadronization model, to obtain a complete modelling of the final state with at least NLO precision. Consequently it has proved very popular with Tevatron and LHC experimentalists.

Seyi's project was to develop a version of MC@NLO for the Herwig++ event generator. The Herwig++ program supersedes the well-known HERWIG event generator, not only by being written in C++ rather than Fortran but also by containing many new physics features. In particular, it uses a new parton shower formalism that improves the treatment of soft radiation and massive quarks, and deals with complicated multi-scale processes like the emission of QCD radiation in sequential decays of unstable (e.g. supersymmetric) particles. However, this means that the modified subtraction terms needed to avoid double-counting in MC@NLO have to be computed anew and implemented in the NLO calculations.

Seyi completed this task for e^+e^- annihilation, which allowed him to compare MC@NLO with LEP data for the first time (the method was never implemented for e^+e^- in the Fortran version). He went on to solve the problems of implementing the method in hadron collisions, starting with the Drell-Yan process. The e^+e^- and Drell-Yan work was published in his single-author paper JHEP 0711:040. After that he computed the general form of the Herwig++ subtraction terms for all processes.

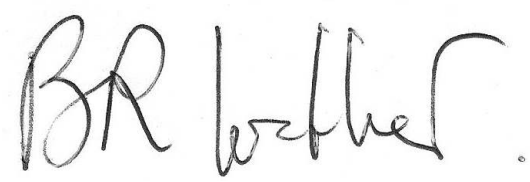
An alternative way of combining fixed-order QCD calculations with parton showers is the POWHEG method proposed by Nason. This has the advantage of avoiding the negative weights assigned to a fraction of events in the MC@NLO approach. Together with Stefan Gieseke and myself, Seyi implemented this method in the context of Herwig++, and com-

pared the results with MC@NLO predictions and LEP data. In a third project, published in another single-author paper, Eur.Phys.J. C58 (2008) 543, Seyi extended this work to top quark production and decay at the ILC.

After completing his thesis, Seyi visited Lund as part of the MCnet Marie Curie Research Training Network. While there, he developed and published an MC@NLO implementation of Higgs boson production in association with a vector boson. He was then attracted to work in industry, but is now keen to get back into basic research. From our regular correspondence I am confident that he has the skills and motivation to make a success of it.

In summary, Seyi is a young physicist with a very useful set of skills and real potential. He is very quick to pick up ideas and is able to work well both independently and in collaboration. He communicates well and in fact won a prize at Cambridge (awarded by students in other research groups) for the best talk on his research at a graduate seminar. I would rate him highly amongst my numerous former students – perhaps not at the level of Christine Davies, Gavin Salam or Mike Seymour, but not far behind, comparable with Mrinal Dasgupta, who now has tenure at Manchester.

Best regards,



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