

I try to summarize a little bit below what LHCb has done in the relevant areas, and a little bit on what we could hope to do.

--Prompt spectroscopy--

We have published papers on D_{sj} and $B_{s^{**}}$ states, measuring Q values and in some cases widths and branching fractions

<http://arxiv.org/abs/1211.5994>

<http://arxiv.org/abs/1207.6016>

as well as a conference note on $B_{0^{**}}$ and $B_{+^{**}}$ states

<http://cdsweb.cern.ch/record/1374165?ln=en>

We are actively looking for higher mass states. So far we have only looked at B/D+charged track combinations, but I have taken away from the workshop that we should also be looking for B/D+ γ/π_0 modes and I will transmit this forward. It would be very helpful to understand more quantitatively how direct observations of these resonances and measurements of mass/width/relative production would feed back into understanding the B-> D^{**} puzzles outlined at the workshop.

--B-> D^{**} hadronic--

Tom Latham summarized our current work on this at the workshop. Certainly we are pursuing this topic vigorously. LHCb benefits from a fully inclusive trigger so we can e.g. trigger on part of the B-> $D^{**}X$ decay and explore the full possible range of X. Again things with π_0/γ are of course much tougher for us but you saw some ideas in this direction from Justine as well.

--B-> D^{**} semileptonic--

These were some of the first measurements which we made. We certainly have an interest in pursuing this further and Philipp Urquijo explained I think quite well what could be done with LHCb at the workshop; he is the expert here so if you would like more information I would advise to ask him to write about it. Again, we have a fully inclusive trigger so we can e.g. trigger on the muon + one of the hadronic tracks and look for the rest. Of course we have the missing mass problem but a lot of this can be overcome and the signals are actually rather clean as our first paper on this topic shows.

<http://cdsweb.cern.ch/record/1326409?ln=en>

--Baryon resonances--

LHCb has made measurements of excited baryons, e.g.

<http://cdsweb.cern.ch/record/1449721?ln=en>

We are actively pursuing these further, but again it would be useful to understand how these measurements and measurements in $L_b \rightarrow L_c X \mu \nu$ help to clarify the situation in B-> $D^{**} X \mu \nu$ etc.