Search for heavy resonances in final states with 4ℓ and missing transverse energy or jets

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AIs form the HDBS approval meeting

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ATLAS EXPERIMENT

List of AIs received during the HDBS approval

(1) For the $A \to ZH$, what happens in events with 6 leptons then? How are the 4 leptons chosen?

(2) Are signal regions orthogonal? Yes, but the diagram and text need to be improved.

(3) Is the number of b-jets a subset of the number of central jets?

(4) Confirm that the interpolated/generated behaviour is similar for many mass points (difference between interpolated and generated is smaller than the signal modelling variations) and if so, just use the interpolated/generated difference as the uncertainty.

(5) Make sure that there's nothing wrong/missing. Try to artificially inflate a leading uncertainty and see if it induces a constraint.

(6) Add category names to each label (rather than numbers) and add a few more mass points so that we can see how consistent the normalization factors are.

(7) Do a comparison for a low mass (high stats) and a high mass (low stats) point.