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## The production of multiple leptons due to heavy bosons at the Large Hadron Collider

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**Abstract content (Max 300 words) - Formatting & Special chars**

We are investigating the implications of the presence of heavy neutral,  $H$ ,  $A$ , and charged bosons,  $H^{\pm}$ , in terms of the production of multiple leptons in proton proton collisions at the Large Hadron Collider. Due to the conservation of gauge invariance it is postulated that the heavy scalar,  $H$ , decays into an intermediate lighter scalar,  $S$ , and the Higgs boson,  $h$  with the decays  $H \rightarrow SS, Sh$ . The scalar  $S$  is assumed to decay into a pair of dark matter particles and pairs of SM particles. One of the most prominent decays would be  $S \rightarrow WW^{(*)}$ , leading to the production of leptons. In addition, the decays  $A \rightarrow ZH$  and  $H^{\pm} \rightarrow W^{\pm} H$  are allowed yielding multiple lepton final states, as well. The final states in interest and the distinct kinematic features will be summarised.

**Apply to be considered for a student award (Yes / No)?**

Yes

**Level for award (Hons, MSc, PhD, N/A)?**

MSc

**Main supervisor (name and email) and his / her institution**

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**Would you like to submit a short paper for the Conference Proceedings (Yes / No)?**

Yes

**Please indicate whether this abstract may be published online (Yes / No)**

Yes.

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