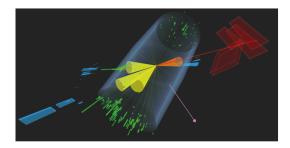
## VII UNIANDES PARTICLE PHYSICS SCHOOL



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## Probing new physics at the LHC with b au u final states

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The  $R_{D^{(*)}}$  anomaly is one of the most intriguing experimental results in particle physics. Experiments as BaBar, Belle and LHCb have measured a consistent tension with the standard model. In this work we study a consequence of different solutions to this tension as a sequential W' boson, EFT and leptoquark. Such models, are not only able to explain the  $R_{D^{(*)}}$  anomaly but also to produce distinctive signatures at the LHC. We proposed a search for the signature b,  $\tau, p_T^{miss}$  maximizing the statistical significance with regard to standard model backgrounds as  $W^\pm$  + jets,  $Z^0$  + jets and  $t\bar{t}$ . We finally show how the different models require a differentiated selection criteria and the exclusion that can be achieved.

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