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Searching for Leptoquarks at Future Circular Colliders

We study the sensitivities of the Future Circular Collider under electron-positron collision (FCC-ee) and hadron-hadron collision (FCC-hh) scenarios for the search of leptoquarks. In particular, we focus on the Z-factory mode and the high- p_T mode. For the Z-factory mode, we summarize past works that matched leptoquark couplings to the Standard Model effective field theory operators (SMEFT) for the Z-boson coupling to the leptoquarks up to one-loop order. For the high- p_T mode, we update the current search status of leptoquark at the Large Hadron Collider and project the sensitivity for the FCC-hh based on it. We also comment on the potential for the FCC to address the flavour anomalies.

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