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Strange jet tagging at the FCC-ee using a transformer NN architecture and K short reconstruction

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The successful identification of strange quark jets at the FCC-ee would enable the study of a multitude of largely unexplored processes, including the first ever study of $Z \rightarrow s\bar{s}$ production, rare Higgs boson decays and the strange Yukawa coupling, CKM matrix elements via W decays, and BSM physics scenarios such as FCNCs. Due to the challenging nature of distinguishing these medium-mass quarks, strange tagging is a topic that has up to now received considerably less attention than its heavy flavour counterparts, or indeed gluon tagging. A multiclassifier neural network using a transformer-based architecture is coupled with secondary vertexing and a novel implementation of K short reconstruction at the FCC-ee to discriminate strange quark initiated jets. This poster presents a state-of-the-art strange quark tagger at the FCC-ee, with a focus on light quark discrimination at the Z pole.

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