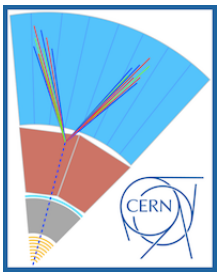

Contribution ID: **9** Type: **not specified**

Charming ALPs (12'+3')

Thursday 19 November 2020 18:40 (15 minutes)

We explore the phenomenology of a pseudo-Nambu-Goldstone bosons of a spontaneous broken global U(1) symmetry, axion-like particles (ALPs), with flavour violating couplings to up-quarks and vanishing couplings to down-quarks and leptons. Such a scenario is motivated by a confining 'dark QCD'UV completion. For light ALPs the phenomenology is governed by the couplings to charm- and up-quarks. We consider constraints from flavour physics and cosmology and find that in part of the remaining parameter space the 'charming ALPs'have large lifetimes. At fixed target experiments and hadron colliders the ALPs are produced in D meson decays. The discovery prospects for FASER, FASER2, MATHUSLA, NA62 and SHiP are explored. We found that already FASER can probe the allowed part of the parameter space, where the ALPs are long-lived.

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Session Classification: New ideas