

# **Search for a single-produced Vector-Like Quark $T'$ decaying into a top quark and a Higgs boson in the dileptonic same sign final state for the full Run 2 data with the CMS experiment**

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One of the most challenging problems of the Standard Model (SM) is the mass of the Higgs boson that diverges by taking the loop contributions into account. The decay of new particles like Vector-Like Quarks (VLQs) could be an interesting explanation as the final state in SM particles is well understood. We will present here the decay of a VLQ  $T'$  into a quark top and a Higgs boson in a dileptonic same sign final state for the full Run 2 data. This new analysis that has never been done before is performed thanks to the CMS detector at LHC.

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