

# Phenomenology 2021 Symposium



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## New physics in $b \rightarrow se^+e^-$ : A model independent analysis

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The lepton universality violating flavor ratios  $R_K/R_{K^*}$  indicate new physics either in  $b \rightarrow s\mu^+\mu^-$  or in  $b \rightarrow se^+e^-$  or in both. If the new physics is only  $b \rightarrow se^+e^-$  transition, the corresponding new physics operators, in principle, can have any Lorentz structure. In this work, we perform a model independent analysis of new physics only in  $b \rightarrow se^+e^-$  decay by considering effective operators either one at a time or two similar operators at a time. We include all the measurements in  $b \rightarrow se^+e^-$  sector along with  $R_K/R_{K^*}$  in our analysis. We show that various new physics scenarios with vector/axial-vector operators can account for  $R_K/R_{K^*}$  data but those with scalar/pseudoscalar operators and with tensor operators can not. We also show that the azimuthal angular observable  $P_1$  in  $B \rightarrow K^*e^+e^-$  decay is most suited to discriminate between the different allowed solutions.

### Summary

**Primary authors:** KUMBHAKAR, Suman (IISc Bangalore); ALOK, Ashutosh (IIT Jodhpur); SAINI, Jyoti (IIT Jodhpur); UMASANKAR, Sankagiri (IIT Bombay)

**Presenter:** KUMBHAKAR, Suman (IISc Bangalore)

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