

## Probing wrong sign Higgs Yukawa in $\gamma$ decay

Soumya Sadhukhan

The rare decay Higgs to  $\gamma$  has a very small rate in the Standard Model, due to a strong cancellation between the direct and indirect diagrams. Models with a changed  $hbb$  coupling can thus lead to a great increase in this decay. Current limits on two Higgs doublet models still allow for the possibility that the  $hbb$  coupling might have a sign opposite to the Standard Model; the so-called 'wrong-sign'. We show how Higgs to  $\gamma$  decay can be used to probe the wrong sign solutions.