

$$h_3 \rightarrow h_{125} h_2$$

[T. Robens, T. Stefaniak, J. Wittbrodt, Eur.Phys.J. C80 (2020) no.2, 151]

2 real scalar extension of SM \Rightarrow 3 scalars

$$m_3 = 360 \text{ GeV}, m_2 = 180 \text{ GeV}, m_1 = 125 \text{ GeV}$$

- LHC production cross section: 0.31 pb @ 13 TeV

[e^+e^- at 1 TeV(Zh_3): 0.3 fb; $\mu^+\mu^-$ at 10 TeV(VBF): 19 fb]

- dominant decays:

$$b\bar{b}W^+W^- (55\%), W^+W^-W^+W^- (19\%), ZZ b\bar{b} (4\%)$$

- additional input parameters: vevs and mixing angles

[$v_s = 140 \text{ GeV}$, $v_x = 100 \text{ GeV}$, $\theta_{hs} = -0.129$, $\theta_{hx} = 0.226$, $\theta_{sx} = -0.899$]

- shift m_2, m_3 to higher values: h_{125}^3 possible, $\sigma_{13 \text{ TeV}} \sim 14 \text{ fb}$