



COMPUTER VISION AND APPLICATION TO DETECTION OF TAU LEPTONS

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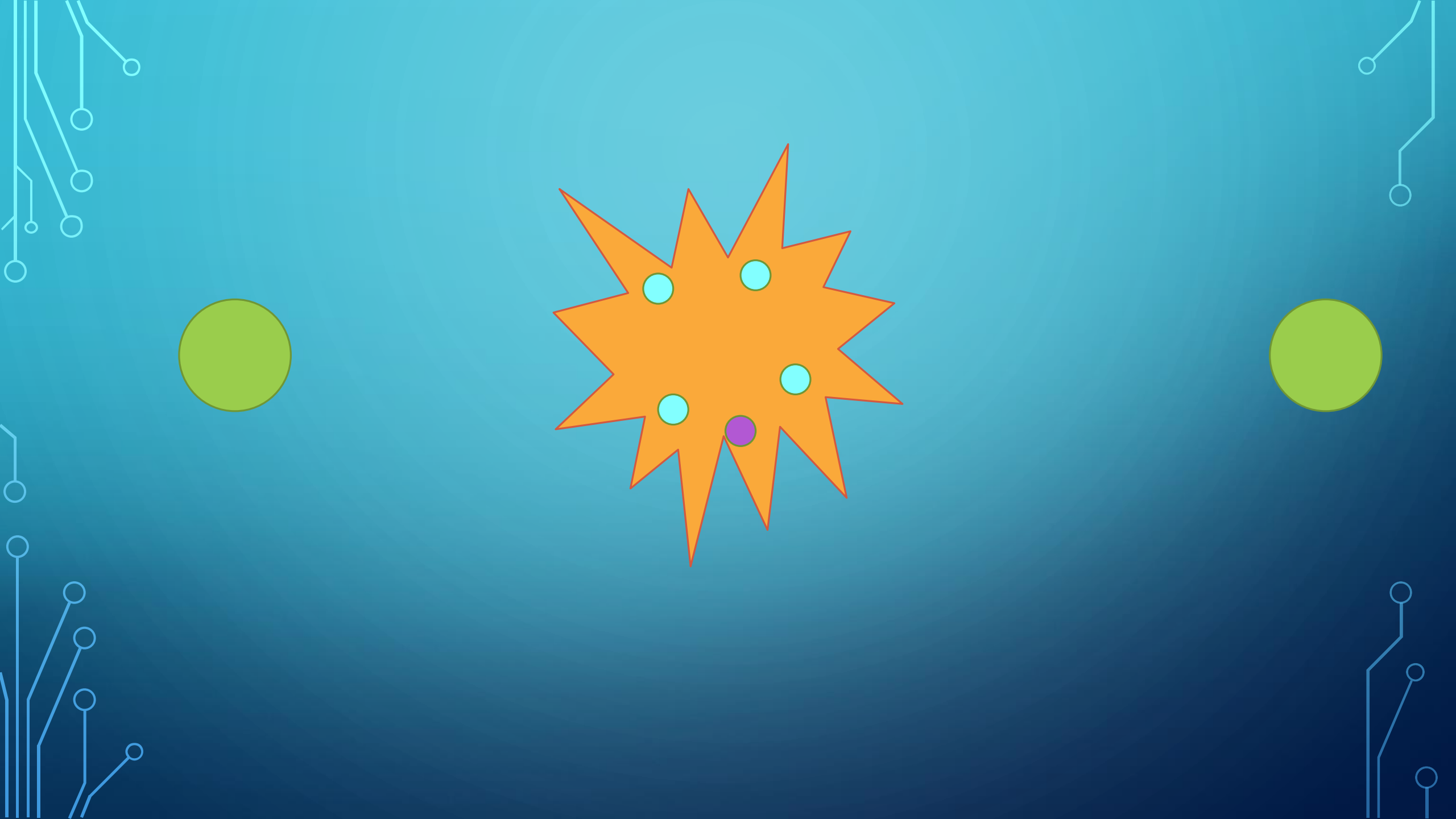
GOALS

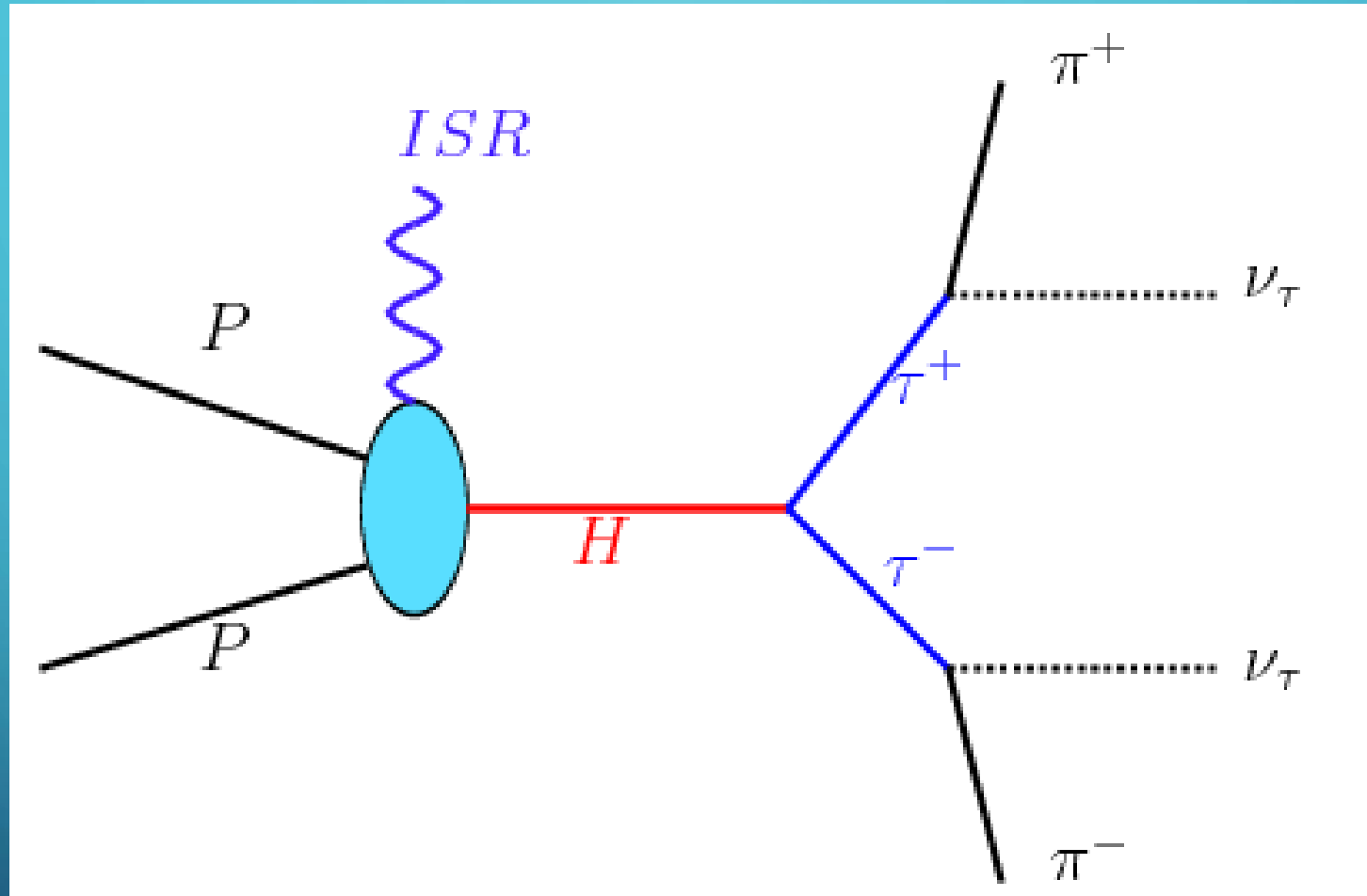
- THROUGH THE USE OF NEURAL NETWORKS, DEVELOPED AN ALGORITHM WHICH EFFICIENTLY CLASSIFIES AND CALIBRATES HADRONIC DECAYS OF τ LEPTONS
- IMPROVEMENT WILL HAVE A DIRECT IMPACT ON THE MEASUREMENTS OF THE HIGGS BOSON

- WANT TO CONSTRUCT A NETWORK WHICH PROVIDES BETTER RESULTS THAN THE ALGORITHM CURRENTLY USED

WHAT DO I DO?

- My role in this project is to take the already constructed neural network, and optimize it so that its performance is better than that of pantau (a different algorithm)





Exploring CP phase in $\tau\tau$ -lepton Yukawa coupling in Higgs decays at the LHC
Bhardwaj, Akanksha *et al.* arXiv:1612.01417 [hep-ph] ADP-16-44-T1000

A decorative graphic on the left side of the page, consisting of a network of white lines and small circles on a blue background, resembling a circuit board or data flow diagram.

MACHINE LEARNING



COMPUTER

IS THIS A PIGEON?

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COMPUTER

IS THIS A MOTH?

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THIS IS A PIGEON

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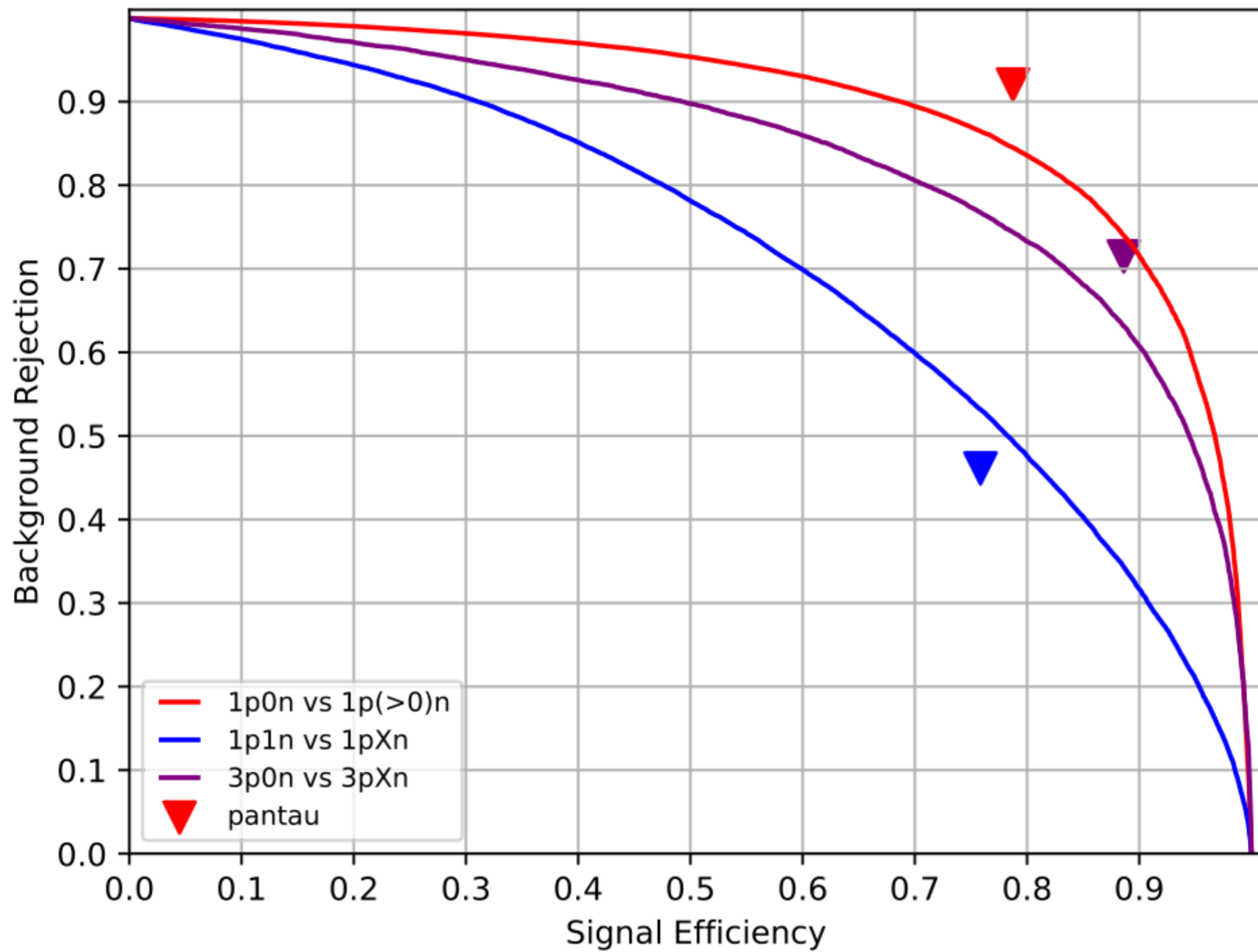




COMPUTER

THIS IS A BUTTERFLY

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CULTURAL EXPERIENCES

REFERENCES

- **Exploring CP phase in $\tau\tau$ -lepton Yukawa coupling in Higgs decays at the LHC**
Bhardwaj, Akanksha *et al.* arXiv:1612.01417 [hep-ph] ADP-16-44-T1000



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