

HNL UPDATE

ETP FCC meeting - 11/07/2024

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PAPER REVIEW

- Paper submitted on CDS for internal review on June 14th
- Got some comments last week (from Juliette and Michele, Patrizia reviewed it before submission)
- No major issue found
- We have a scheduled presentation in the FCC Physics Performance meeting next Monday, July 15th
- We also submitted the abstract for a talk in the ECFA workshop in October (asked by Rebeca)
- There may be the opportunity for presenting the work in the Italy-France FCC workshop in November too (request from organisers)

ANALYSIS UPDATE

- Instead we noticed from the Higgs samples that Madgraph with SM has some default cuts applied on p_t , η and d_r of leptons
- Not a problem for the BSM HNL signal or centrally produced backgrounds
- The impact is only on the $\ln\nu$ background
- Found no way to make it work with lower cuts
- We may need to keep things as they are and apply the cuts on the rest of the processes to be consistent
- May result in worse significance and we may need to think about updating the other cuts
- Minor update on plots to show leading and subleading leptons separately