

1 EVIDENCE FOR DECAYS OF THE HIGGS BOSON TO TAU  
2 LEPTONS AT ATLAS

3 Alexander Tuna

4 A DISSERTATION

5 in

6 Physics and Astronomy

7 Presented to the Faculties of The Univeristy of Pennsylvania  
8 in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy  
9 2014

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# ABSTRACT

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EVIDENCE FOR DECAYS OF THE HIGGS BOSON TO TAU LEPTONS AT ATLAS

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Alexander Tuna

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H.H. Williams

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# Preface

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71 This is the preface. Blah blah blah blah blah blah. Blah blah blah blah blah blah. Blah  
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Ryan Reece

CERN, December 2012

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## CHAPTER 1

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# Introduction

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86 Here is a citation [1].

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## CHAPTER 2

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# $H \rightarrow \tau\tau$ analysis strategy

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The strategy of the  $H \rightarrow \tau\tau$  strategy is described.

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### **2.1 Introduction**

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### **2.2 $\tau\tau$ mass reconstruction**

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### **2.3 MVA discrimination**

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Here is a citation [\[1\]](#).



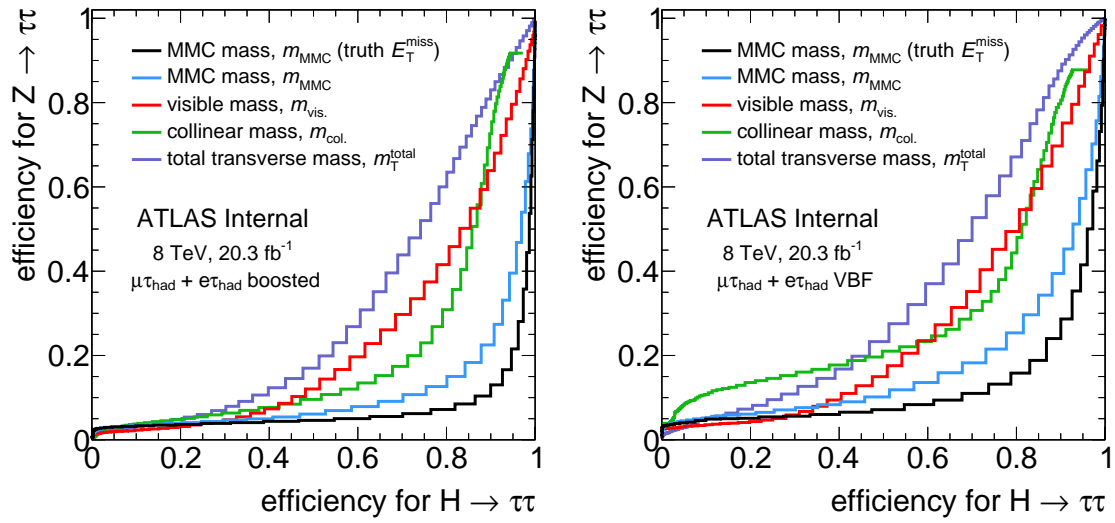


Figure 2.1: Variables.

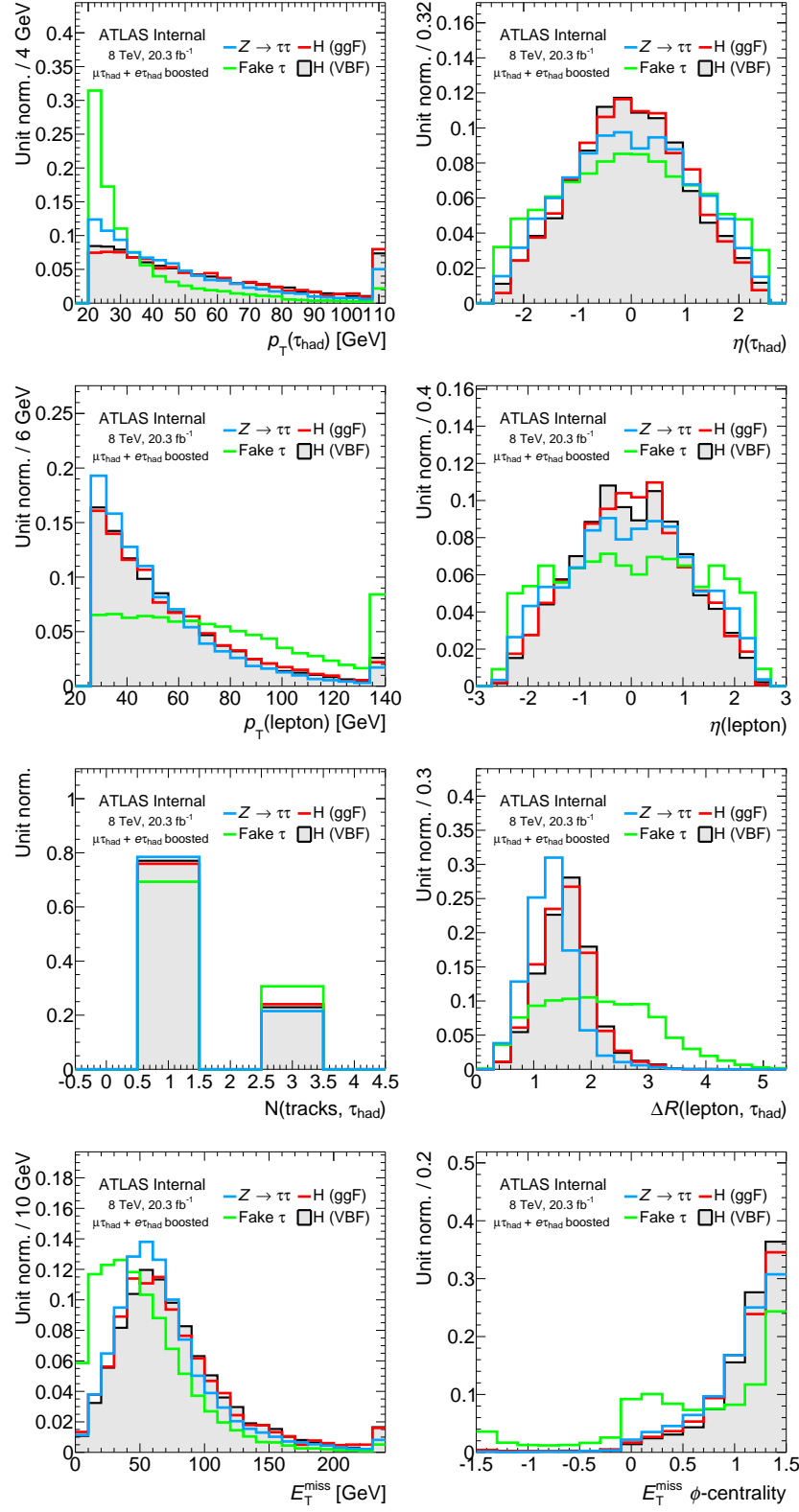


Figure 2.2: Variables.

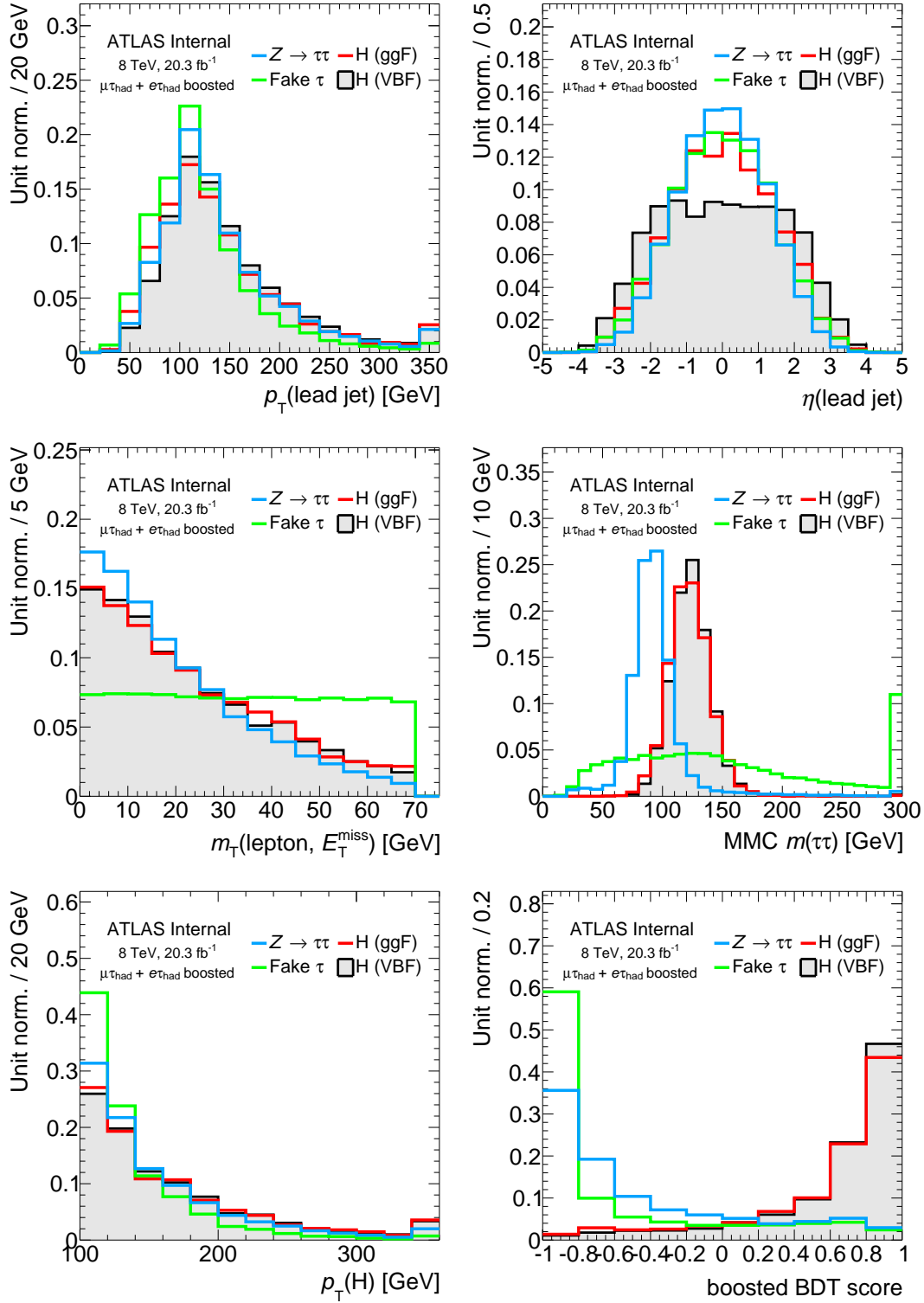


Figure 2.3: Variables.

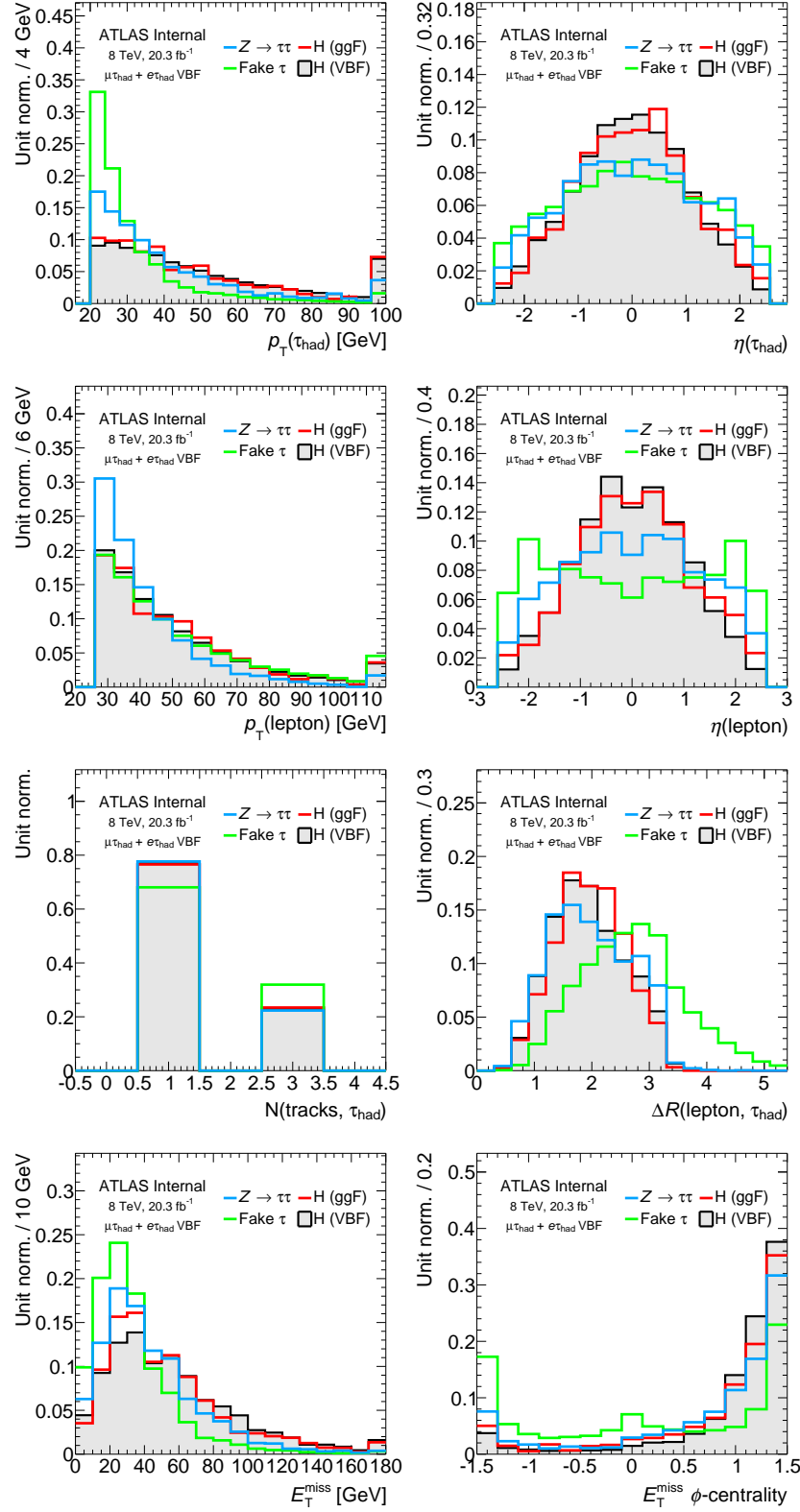


Figure 2.4: Variables.

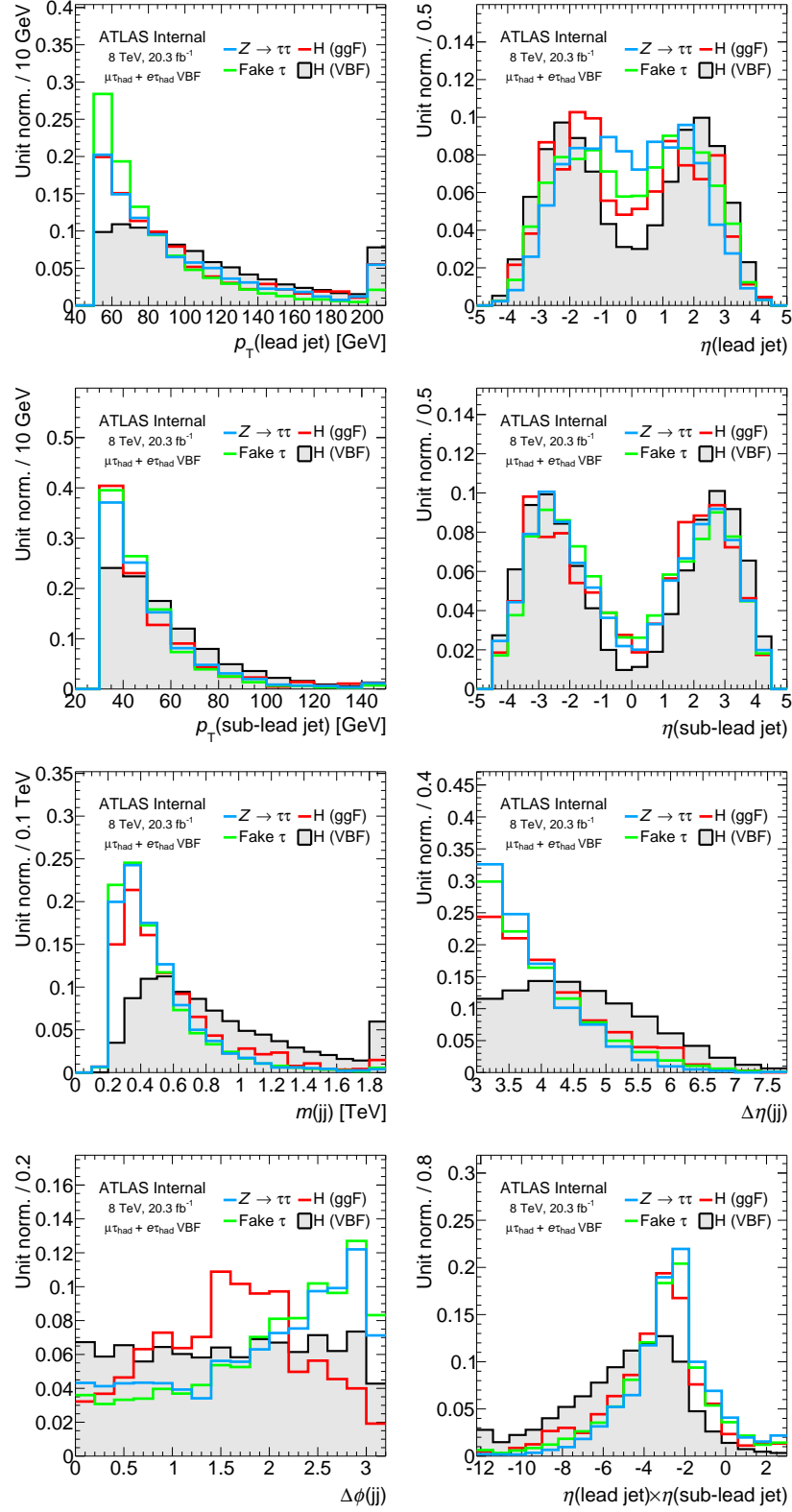


Figure 2.5: Variables.

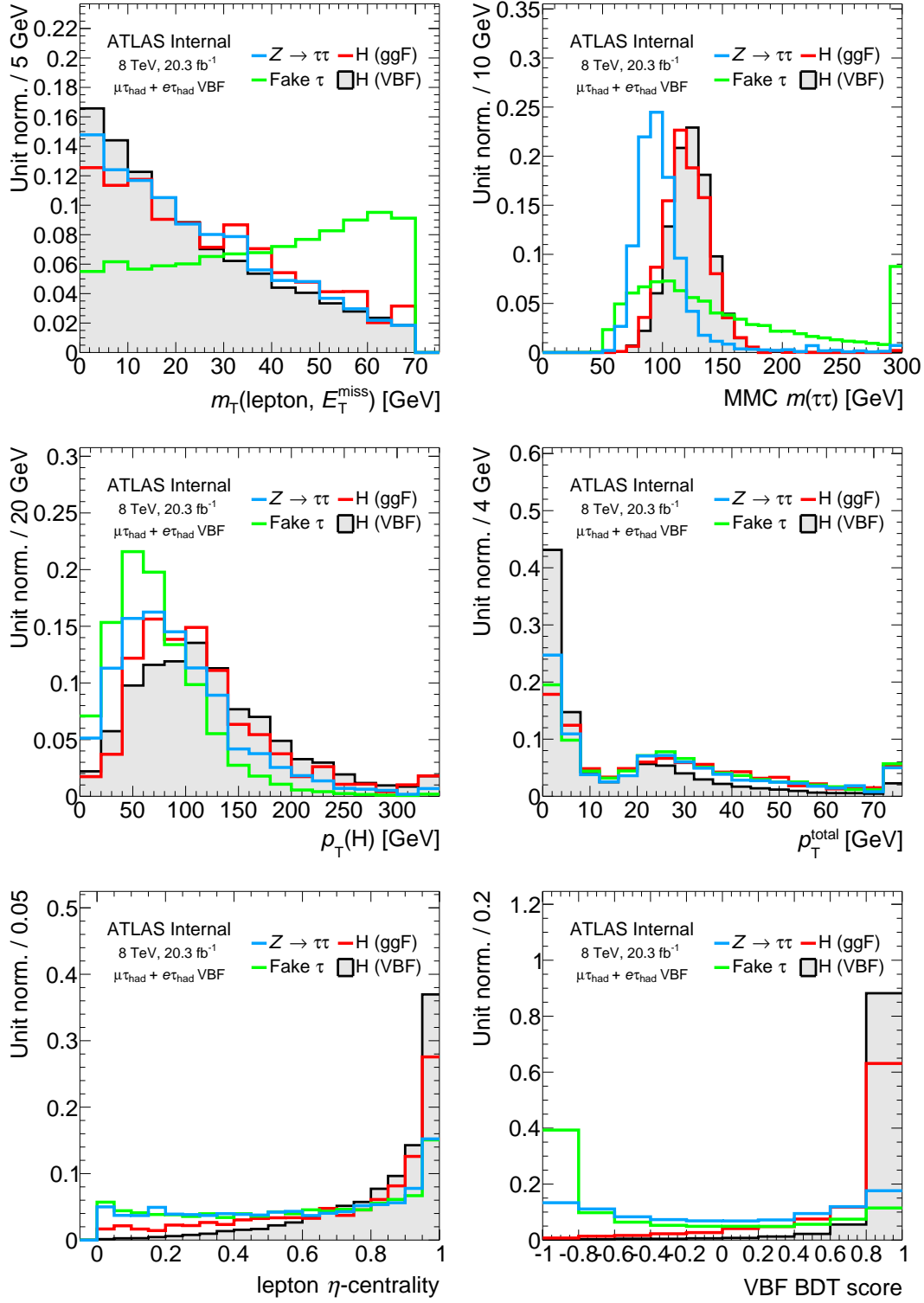


Figure 2.6: Variables.

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## Bibliography

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- 95 [1] ATLAS Collaboration, *ATLAS detector and physics performance: Technical Design Report*.  
96 CERN, Geneva, 1999. [1](#), [2.3](#)