



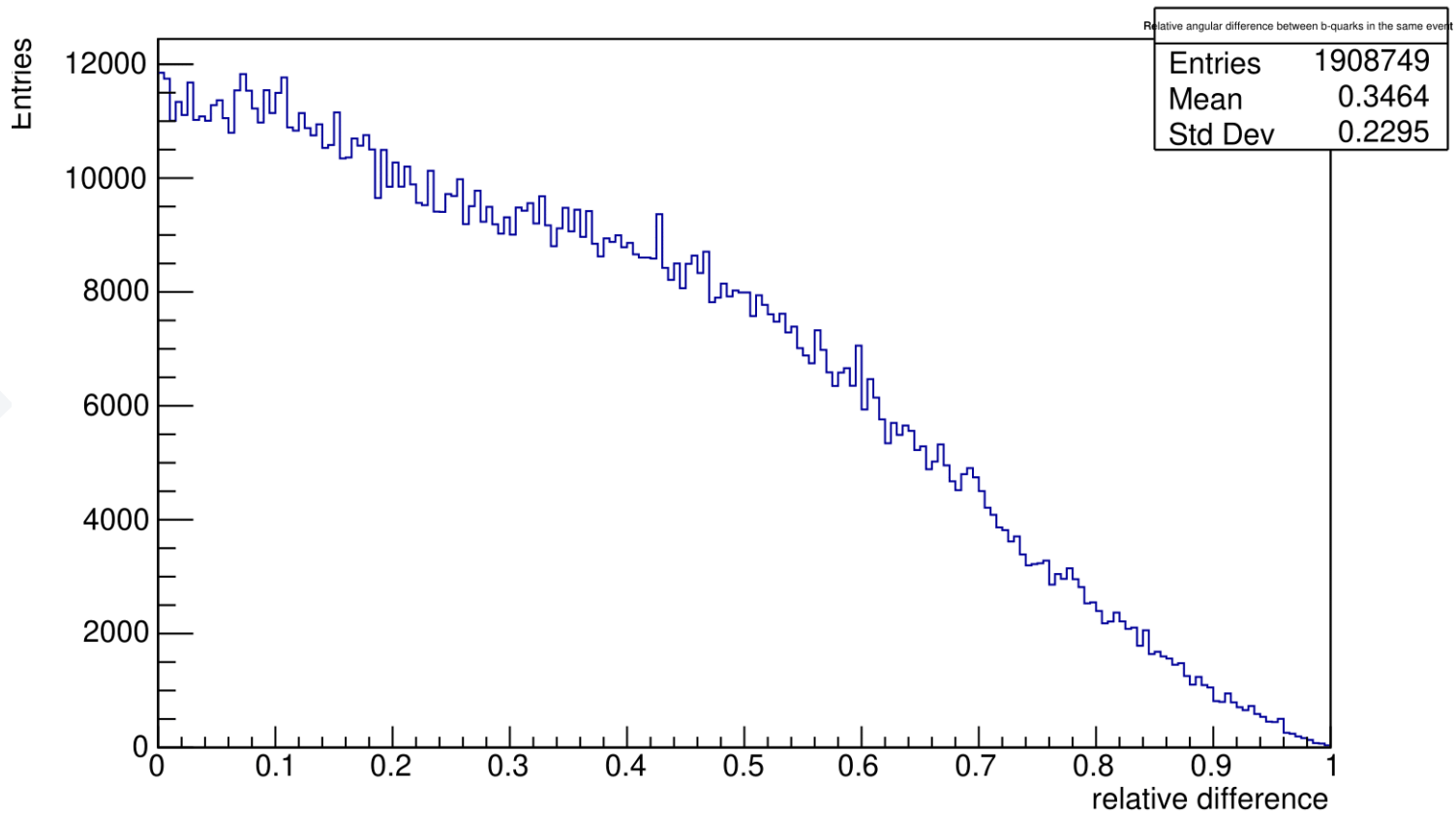
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Masterthesis update

SoSe 2024
14.5.2024

**So how did my
last week look
like?**

Relative Angular Difference between b-quarks in the same event



```
it2.second: 1    it2.first: 392
exclusive_jets[it2->second].px(): 104.316

it2.second: 3    it2.first: 415
exclusive_jets[it2->second].px(): -101.334

it2.second: 0    it2.first: 421
exclusive_jets[it2->second].px(): -132.595

it2.second: 0    it2.first: 155

*** Break *** segmentation violation
exclusive_jets[it2->second].px():
```

```
=====
There was a crash.
This is the entire stack trace of all threads:
=====
#0  0x0000151ecd33c3a in __GI___wait4 (pid=2318082, stat_loc=stat_loc
entry=0x7ffcf2c3968, options=options
entry=0, usage=usage
entry=0x0) at ../sysdeps/unix/sysv/linux/wait4.c:27
#1  0x0000151ecd33bfb in __GI___waitpid (pid=<optimized out>, stat_loc=stat_loc
entry=0x7ffcf2c3968, options=options
entry=0) at waitpid.c:38
#2  0x0000151ecd9a2f67 in do_system (line=<optimized out>) at ../sysdeps/posix/system.c:172
#3  0x0000151ecf2065ce in TUnixSystem::StackTrace() () from /software/opt/focal/x86_64/root/6.22.06/lib/libCore.so
#4  0x0000151ecf203455 in TUnixSystem::DispatchSignals(ESignals) () from /software/opt/focal/x86_64/root/6.22.06/lib/libCore.so
#5  <signal handler called>
#6  0x000055bad14a597e in fastjet::PseudoJet::px (this=0x0) at /home/o/Otmar.Biebel/MC/fastjet-3.3.0/include/fastjet/PseudoJet.hh:105
#7  0x000055bad14a3d8d in makeEventSample (nEvents=100000) at Bjetfinder-TS.C:655
#8  0x000055bad14a4d4e in main (argc=1, argv=0x7ffcf2c1c6fe8) at Bjetfinder-TS.C:879
=====
```

The lines below might hint at the cause of the crash.
You may get help by asking at the ROOT forum <https://root.cern.ch/forum>
Only if you are really convinced it is a bug in ROOT then please submit a
report at <https://root.cern.ch/bugs> Please post the ENTIRE stack trace
from above as an attachment in addition to anything else
that might help us fixing this issue.

```
=====
#6  0x000055bad14a597e in fastjet::PseudoJet::px (this=0x0) at /home/o/Otmar.Biebel/MC/fastjet-3.3.0/include/fastjet/PseudoJet.hh:105
#7  0x000055bad14a3d8d in makeEventSample (nEvents=100000) at Bjetfinder-TS.C:655
#8  0x000055bad14a4d4e in main (argc=1, argv=0x7ffcf2c1c6fe8) at Bjetfinder-TS.C:879
=====
```

```

for(auto it2 =event_matches_id.cbegin(); it2 != event_matches_id.cend(); ++it2)
{
    //Definition of the first jet lorentz-4 vector

    TLorentzVector jetb_lvector1 = TLorentzVector(exclusive_jets[it2->second].px(), exclusive_jets[it2->second].py(), exclusive_jets[it2->second].pz(), exclusive_jets[it2->second].e());

    //Definition of the first momentum-3 vector
    TVector3 v1= TVector3(exclusive_jets[it2->second].px(),exclusive_jets[it2->second].py(),exclusive_jets[it2->second].pz());
    /*
    //Definition of Variables of the jet
    double t transverse_momentum_bjet_combinatoric = jetb_lvector1.Perp();
    double t jet1_phi = jetb_lvector1.Phi();
    double t jet1_pseudorap = jetb_lvector1.PseudoRapidity();

```

```

for(auto it2 =event_matches_id.cbegin(); it2 != event_matches_id.cend(); ++it2)
{
    //Definition of the first jet lorentz-4 vector

    cout<<"it2.second: " << it2->second <<"    it2.first: "<< it2->first<< std::endl;
    cout<<"exclusive_jets[it2->second].px(): " <<exclusive_jets[it2->second].px() << std::endl;

    cout<< std::endl;|
    /*
    TLorentzVector jetb_lvector1 = TLorentzVector(exclusive_jets[it2->second].px(), exclusive_jets[it2->second].py(), exclusive_jets[it2->second].pz(), exclusive_jets[it2->second].e());

    //Definition of the first momentum-3 vector
    DisplacementVector3D<double> v1(exclusive_jets[it2->second].px(), exclusive_jets[it2->second].py(), exclusive_jets[it2->second].pz() );

    //Definition of Variables of the jet
    double t transverse_momentum_bjet_combinatoric = jetb_lvector1.Perp();
    double t jet1_phi = jetb_lvector1.Phi();
    double t jet1_pseudorap = jetb_lvector1.PseudoRapidity();

    //Definition of the Jetmass (has jet to be fixed)
    double t jet_mass_b_jet_combinatoric = sqrt(jetb_lvector1.E()*jetb_lvector1.E()-jetb_lvector1.Px()*jetb_lvector1.Px()-jetb_lvector1.Py()*jetb_lvector1.Py()-
    jetb_lvector1.Pz()*jetb_lvector1.Pz());

```

**So what was
the general
plan I
investigate?**

	H->bb	Combinatoric Background
Transverse Mass		
Relative Mass		
Angle Difference		
Angle between jets		

„Absolut Variables“

„Relative Variables“

