

Joint JetMET/EWK Physics Analysis Summary

Performance of Missing Transverse Energy Reconstruction in events from pp collision data with $\sqrt{s} = 7 \text{ TeV}$ containing electroweak bosons.

Stefano Lacaprara

INFN PD

PD meeting
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The task

Performance of Missing Transverse Energy Reconstruction in events from pp collision data with $\sqrt{s} = 7 \text{ TeV}$ containing electroweak bosons.

- MET Commissioning in events where true MET is present.
- Similar work in multijets events by MTE group (other PAS).
- Select W and Z in electron and muon channel, following recipes from VBTF.
- Study MET(s) (Calo - raw and Type-1 corrected -, Tc, PF, ...) for W events;
- Study MET(s) in Z events with one lepton removed;
- If possible, study also W+N-jets events;
- Also high-pt isolated photons.

W Events - after a tight selection but loose cut on MET

- how well does the shape of the MET distribution in the MC match real data?
 - demands control of the background as well
 - critical: position and shape of the peak (maybe better to look at MT)
 - check the tail to the high end
 - check events with a jet veto - probes the lepton contribution
 - check events with an energetic jet - probes the jet contribution
- what is the composition (thinking of PF) ?
- Compare CaloMET, tcMET and PFMET on an event-by-event basis
 - examine events in which differences are large - is there any sign of an error?
 - are there events in which one method gives an unusually high value?
 - if so, what is the reason?



Z Events - should already be very clean

- how well does the shape of the MET distribution in the MC match real data?
 - check events with a jet veto - probes the lepton contribution
 - check events with an energetic jet - probes the jet contribution
- what is the composition (thinking of PF) ?
- are the parallel and perpendicular components of the hadronic part (U_{perp} and U_{parallel}) well simulated?
- which MET is best (has the best resolution)?
 - Since there is no intrinsic large MET component for Z events, we can use them to make a data-driven comparison.
 - Drop one of the leptons and recalculate the MET. Compare to the value before dropping the lepton.
 - Which method has the narrowest distribution of the difference?
 - Is the distribution of the difference well simulated?



Timescale

Get ready for ichep

WEEK	Monday	Meeting	Events
1	29-MAR		Media Event March 30. Beginning of Run.
2	05-APR	JetMET	JetMET meeting on Easter Monday (holiday, so no CERN room)
3	12-APR		
4	19-APR	JetMET	JetMET meets at new time 15:30 – 17 (1.5 Hours)
5	26-APR		Deadlines
6	03-MAY	JetMET	DEADLINE to inform JetMET about intent to do analysis for ICHEP.
7	10-MAY		
8	17-MAY	Phys/Trig Week	DEADLINE for 1st presentation of topic. Want summary of ALL topics here.
9	24-MAY		
10	31-MAY	JetMET	Jet freeze of dataset 31-MAY ~2pb ⁻¹ PAS plans talk: JetMET 31-MAY
11	07-JUN		Jet analysis notes and PAS 07-JUN
12	14-JUN	CMS Week	Jet pre-approvals in JetMET 14-JUN; MET freeze of dataset 14-JUN~3pb ⁻¹
13	21-JUN		Jet light ARC green light 23-JUN ; MET analysis notes and PAS 21-JUN
14	28-JUN	JetMET	Jet approvals Wed 30-JUN ; MET pre-approvals: JetMET 28-JUN
15	05-JUL		JET PAS APPROVAL MET light ARC green light 07-JUL
16	12-JUL	JetMET	MET approvals Wed 14-JUL
17	19-JUL		ICHEP begins Wednesday 21-JUL 2 MET PAS APPROVALS

Activity must start NOW and last up to begin of summer



People

Co-editors

Stefano Lacaprara and Artur Apresyan

Contributors

Michail Bachtis, Kira Grogg, Chiara Rovelli, Emanuele Di Marco, Mara Senghi Soares, Carmen Diez, **Massimo Nespolo**, **Stefano Lacaprara**, Matthieu Marionneau, David Wardrope, Robin Nandi, Phil Duderod, Chris Rogan, Artur Apresyan, Maria Spiropulu, Florent Lacroix (Z's), Meenakshi Narain (W's), Gena Kukartsev, Michael Segala, Ulla Gebbert (photons, Z's), Jordan Damgov (photons), Sungwon Lee (photons), Lawrence Gibbons (W's), Aleko Khukhunaishvili (W's), Jim P Alexander (W's), Freya Blekman (W's)

Other people from Padova? Sara Vanini and ???

