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ATLAS multi-lepton analysis

- [LBL Trilepton](#)
- [ATL-COM-PHYS-2011-1374](#): Search for anomalous production of like-sign dilepton events with at least one electron
- [ATL-COM-PHYS-2011-1243](#): Search for Evidence of New Physics in Events with Three Leptons
- [ATL-COM-PHYS-2011-960](#): Search for Evidence of New Physics in Events with Four Leptons
- [ATL-COM-PHYS-2011-954](#): SUSY Searches at ATLAS in Final States with At Least Four Leptons and Missing Transverse Energy

CMS multi-lepton analysis

- CMS Physics Results
- [1106.0933v2](#): Search for Physics Beyond the Standard Model Using Multilepton Signatures in pp Collisions at $\sqrt{s}=7$ TeV
- [talk](#): CMS searches for R-parity violating SUSY by Richard Carl Gray
- [talk](#): Searches for multi-lepton Production in CMS by Dr. Fedor Ratnikov (KIT - Karlsruhe Institute of Technology (DE))

Reference

- [1110.1368](#): Backgrounds To Higgs Boson Searches from Asymmetric Internal Conversion
- [1110.4738](#): Four-lepton production at hadron colliders: aMC@NLO predictions with theoretical uncertainties

lepton selection

- Same-Sign Dimuon

```
combined Staco muons
normal MCP hit requirements
|eta|<2.5
pT>10
Q_ID == Q_MX
|d0|<0.2
|z0*sin(theta)|<5.0
|d0|/sigma(d0) < 3.0
one muon with pt>20 matches trigger
ptcone40_500/pt < 0.08 && ptcone40_500 < 5.0
```

$\mu\mu$ -channel:

- pt 20/10 GeV
- |d0|/sigma(d0) < 3
- track isolation: ptcone40/pt < 0.10 && ptcone40 < 5 GeV (although tightened for our more recent)

ee-channel:

- pt 25/20 GeV
- medium && medium++ && B-layer hit if expected
- calorimeter isolation: etcone20(corrected for pileup & leakage) < 3 GeV + (Et-20GeV)*0.037
- track isolation: ptcone30/Et < 0.10
- loose IP cuts

e μ -channel: hbrid of the above...

This topic: [Sandbox > MultileptonAnaTest](#)

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