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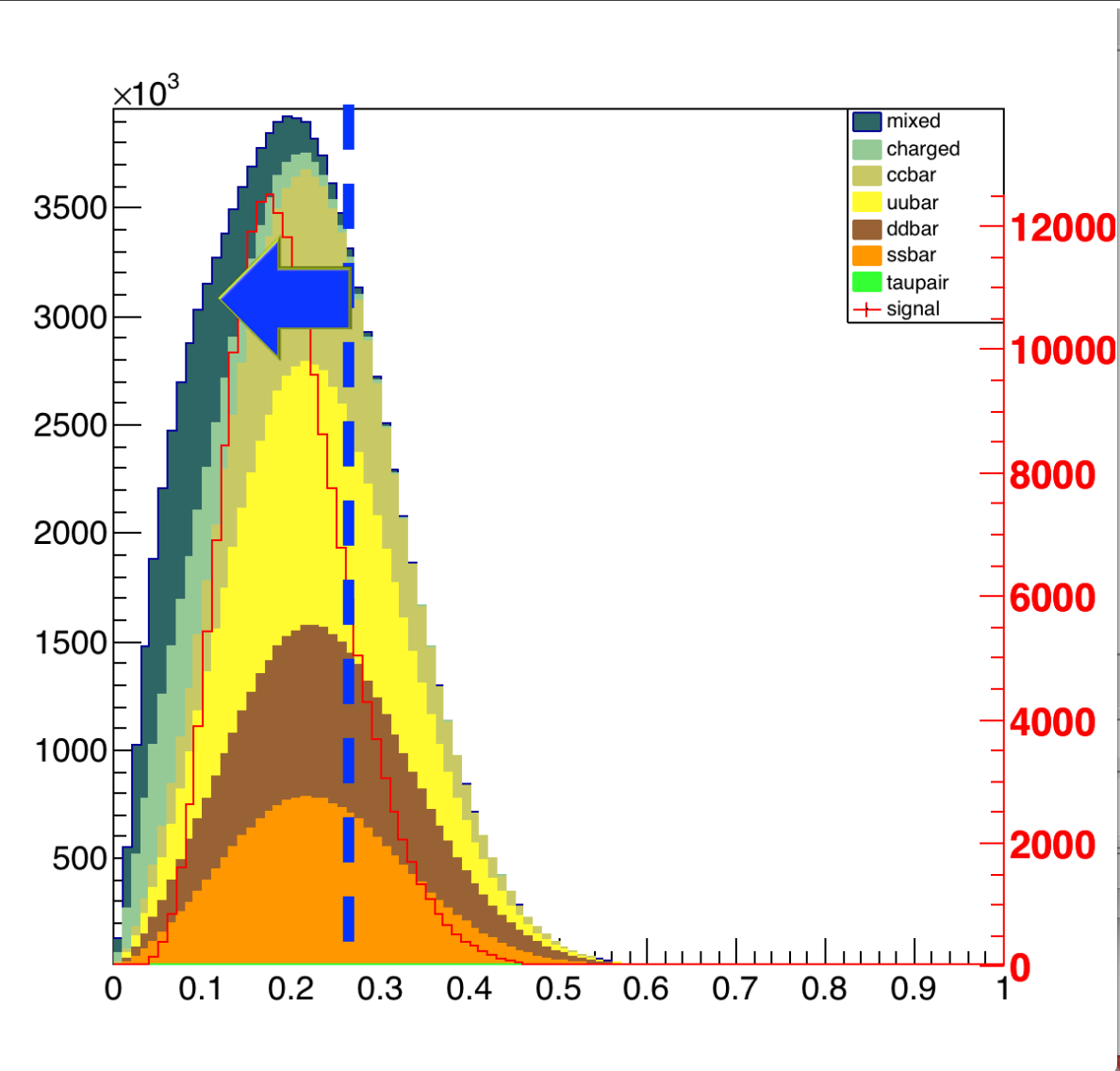
# Semitaunonic Report

Racha Cheaib

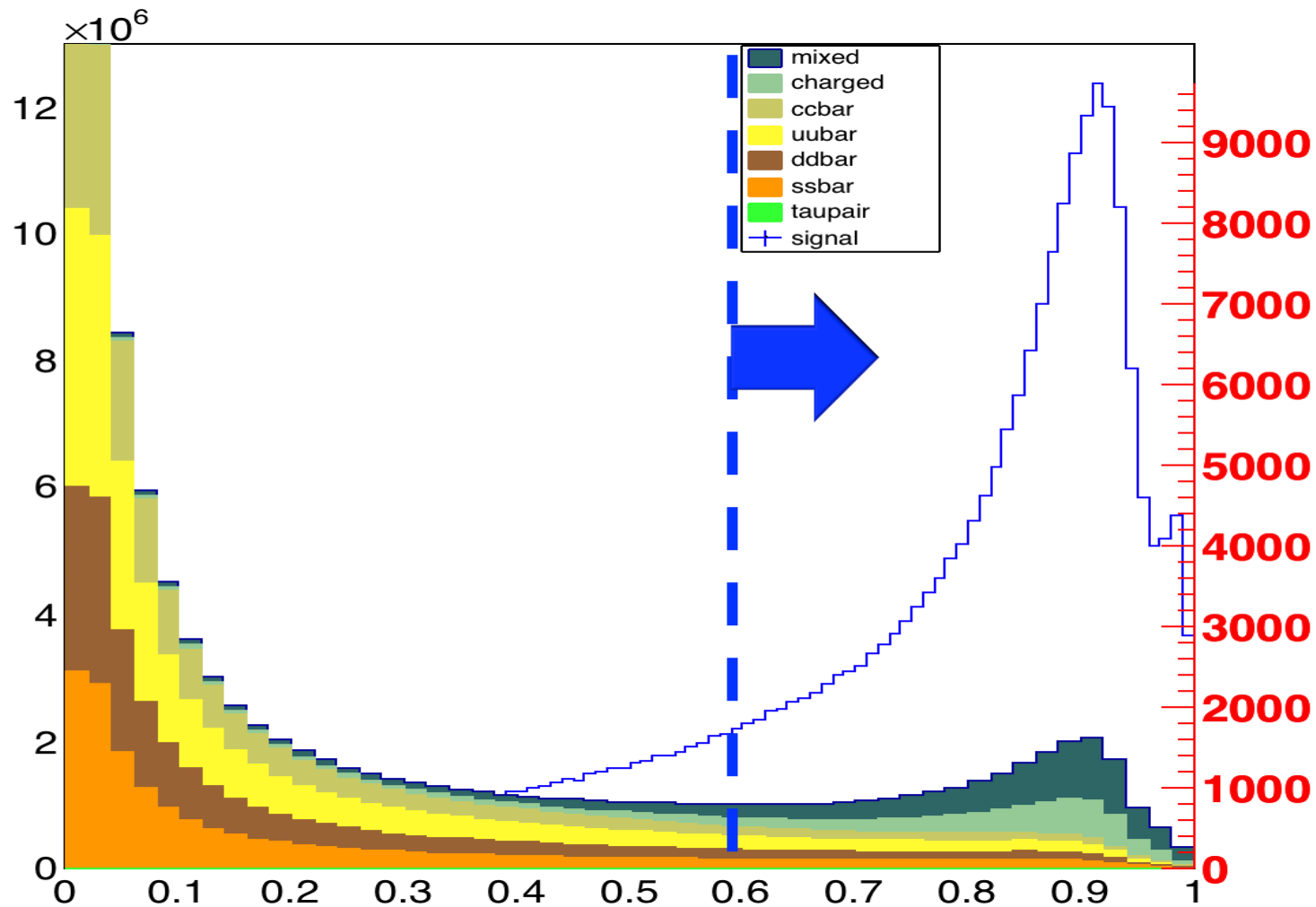
University of Mississippi

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# R2



# Continuum Suppression



# Numbers

Sample	R2 Cut	Continuum Suppression
Signal	79.5%	90.2%
Mixed	97.7%	72.6%
Charged	97.8%	70.6%
ccbar	62.0%	10.7%
uubar	62.0%	10.7%
ddbar	58.7%	11.53%
ssbar	55.89%	11.81%
taupair	3.02%	13.1%

# Preparation for Phase III

- Signal Selection (changes can be easily added or removed).
- Validation scripts update and monitoring.
- FEI calibration, optimization, studies.
- Beam background effects
  - Will produce BGx0 samples in the next week.
- Determine D/D\* resolution to optimize D mass selection window.
  - Preliminary script available.
  - Needs to be updated and rerun.
- Train TMVA to suppress continuum (in progress)
  - Add BDT output to ntuple
  - Add weight variable to ntuple. HELP?
- Use truth information to understand D and D\* reconstruction efficiency and signal cross-feed.
  - Preliminary script in progress
  - Need to determine signal component in mixed and charged generic MC.

# Preparation for Phase III

- ▣ Study main backgrounds.
  - ▣  $D^* l \nu$ ,  $D^{**} l \nu$ ,  $D^* \pi l \nu$ , other BB, continuum
- ▣ Train TMVA to suppress main backgrounds.
- ▣ Study and estimate peaking background B to  $D^{**}$  (MC10 signal samples are being skimmed now).
- ▣ Signal extraction → IDEAS?
- ▣ Systematic Uncertainties → Not there yet!

# Numbers

Sample	Events	R2 Cut	Continuum Suppression
Signal	796981	633216	718924
Mixed	1.30843e+07	1.27904e+07	9.49607e+06
Charged	8.24003e+06	8.06685e+06	5.81846e+06
ccbar	2.0136e+07	1.24911e+07	2.15595e+06
uubar	2.796e+07	1.73446e+07	2.99366e+06
ddbar	1.94533e+07	1.1424e+07	2.24232e+06
ssbar	2.01945e+07	1.12864e+07	2.38535e+06
taupair	63849.4	1933.19	8361.8