Quantification of Accidentals and Other Beam Studies

- How does a MMSQ cut effect the accidental rate inside the primary beam bucket?
- How does a QFactor effect the accidental rate inside the primary beam bucket?
- Review of PhiEta Invariant Mass Yields *** accidental subtracted***
 - Eta Only Q Factor
 - Phi Only Q Factor
 - PhiEta Joint Q Factor
 - Elliptical Subtraction













Summary of Important Results

• <u>|MMSQ| < 0.04</u>: 22% Accidental Contamination

• <u>|MMSQ| < 0.02</u>: 21% Accidental Contamination

• <u>|MMSQ| < 0.01</u>: 20% Accidental Contamination

 Choosing a different MMSQ cut does not greatly effect the accidental rate inside the primary beam bucket

Beam DeltaT, Joint QFactor



Beam DeltaT, Joint QFactor



Beam Δ T : 1 - Q Weighted



Beam DeltaT, Not Qfactor Weighted



Beam DeltaT, Not Qfactor Weighted



Summary of Important Results

• With Qfactor Weights: 18% Accidental Contamination

• <u>Without Qfactor Weights</u>: 21% Accidental Contamination

• The Qfactor Method appears to slightly decrease the rate of accidentals inside the primary beam bucket

PhiEta, Eta QFactor



PhiEta, Phi QFactor





PhiEta, Elliptical Subtraction



Summary of Important Results

• <u>Eta QFactor</u>: 2560 Events

• Phi QFactor: 2031 Events

• <u>PhiEta QFactor</u>: 2227 Events

• Elliptical Subtraction: 2417 Events