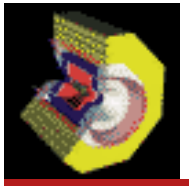

Cornell University
Laboratory for
Elementary-Particle Physics

$D_S^{*+} \to D_S^+ e^+ e^-$

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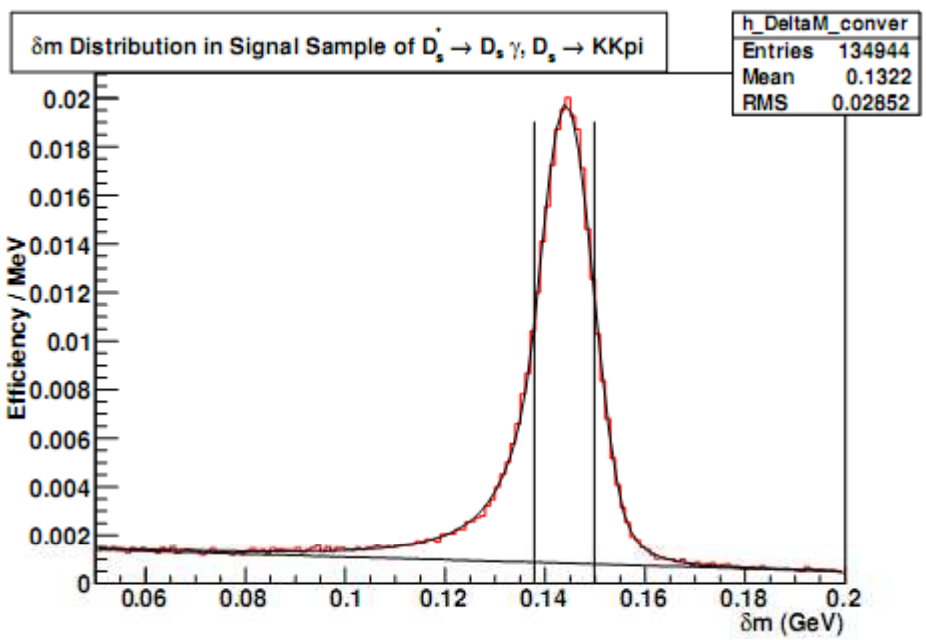
Cornell University

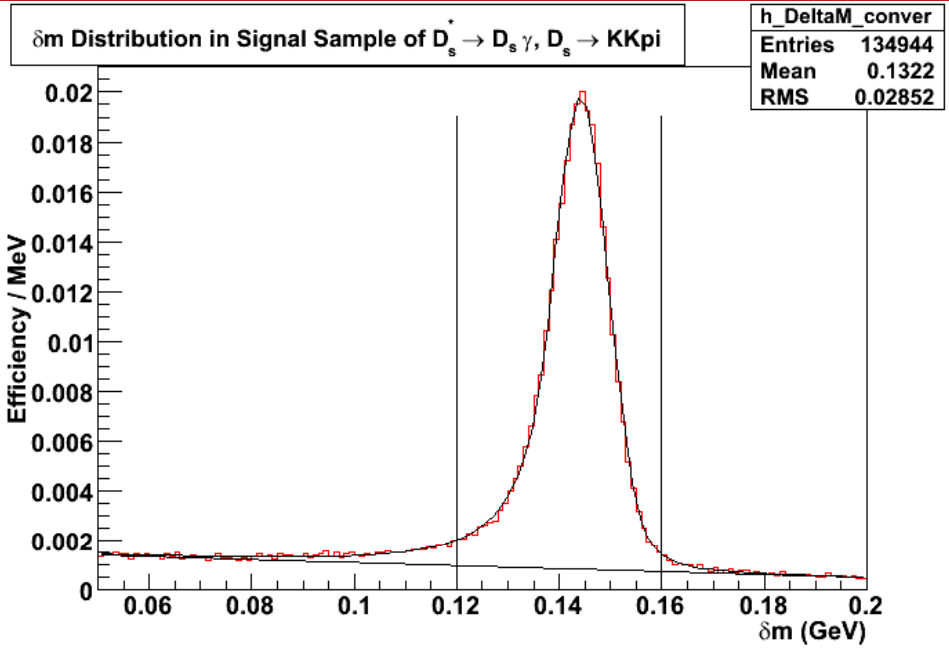
Contents

- DsGamma

6 July 2010

Ds* -> Ds gamma Channel





Delta m Cut, as directly copied from the Ds*->Ds e+e- reconstruction is too narrow for the Ds*->Ds gamma reconstruction. It could drop events where the photon's reconstruction is not well modeled in Monte Carlo. Hence we widened the cut to between 120 and 140 MeV.

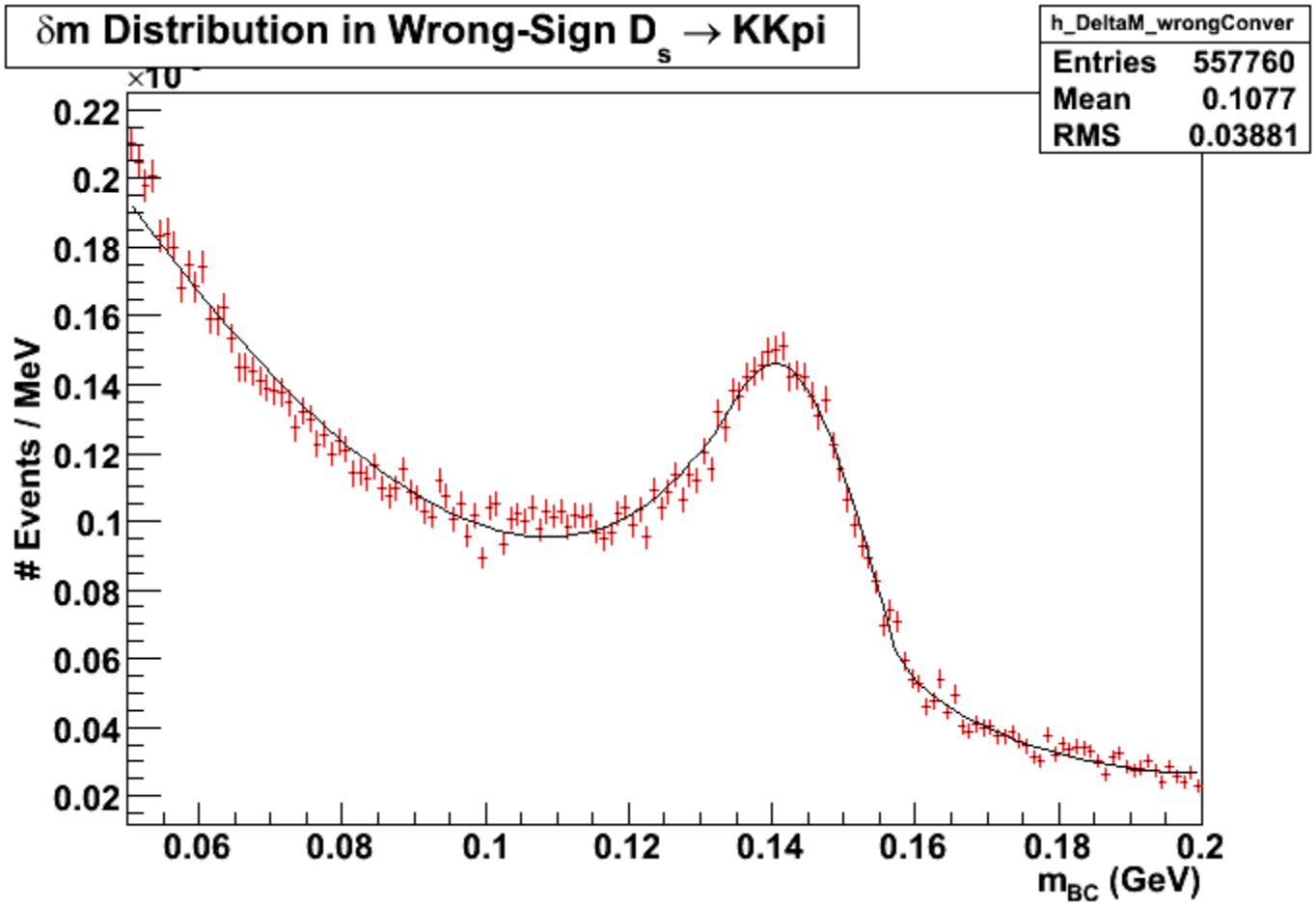
Standard dm Cut

•The cut efficiency is found to be 18.9 %.

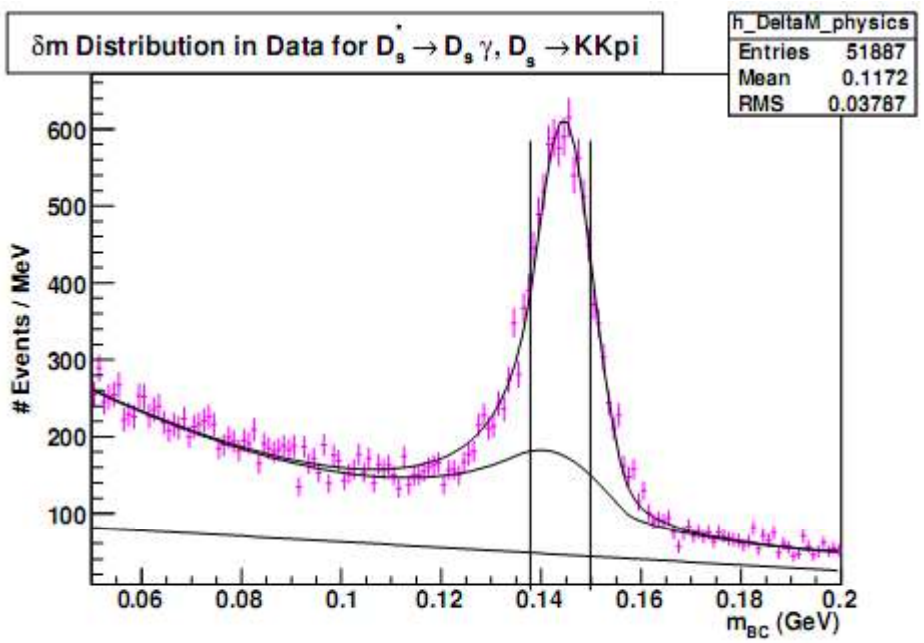
Widened dm Cut

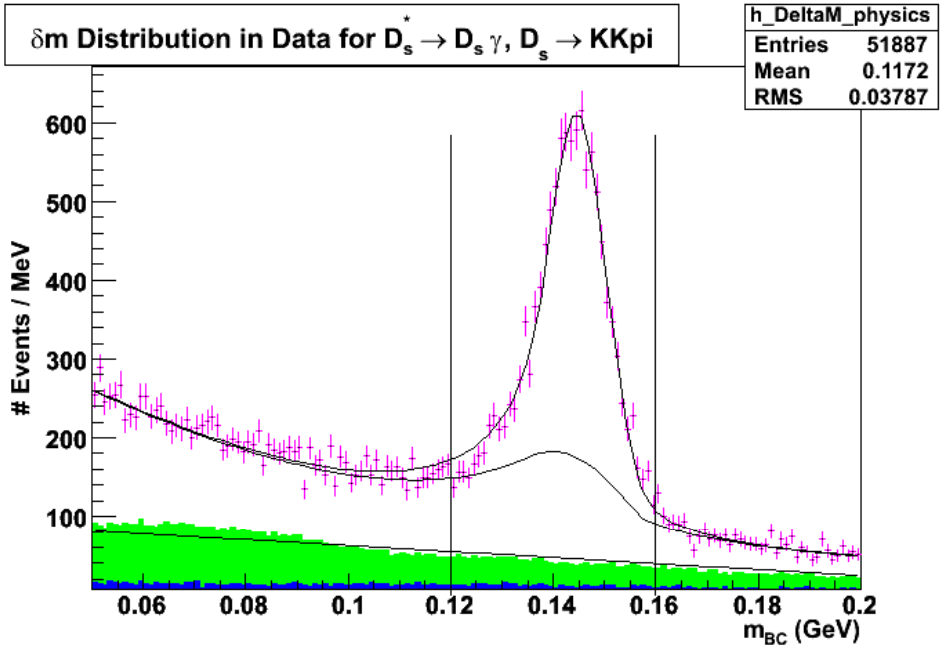
•The cut efficiency is found to be 29.0%

Ds* -> Ds gamma Channel



Ds* -> Ds gamma Channel





Standard dm Cut

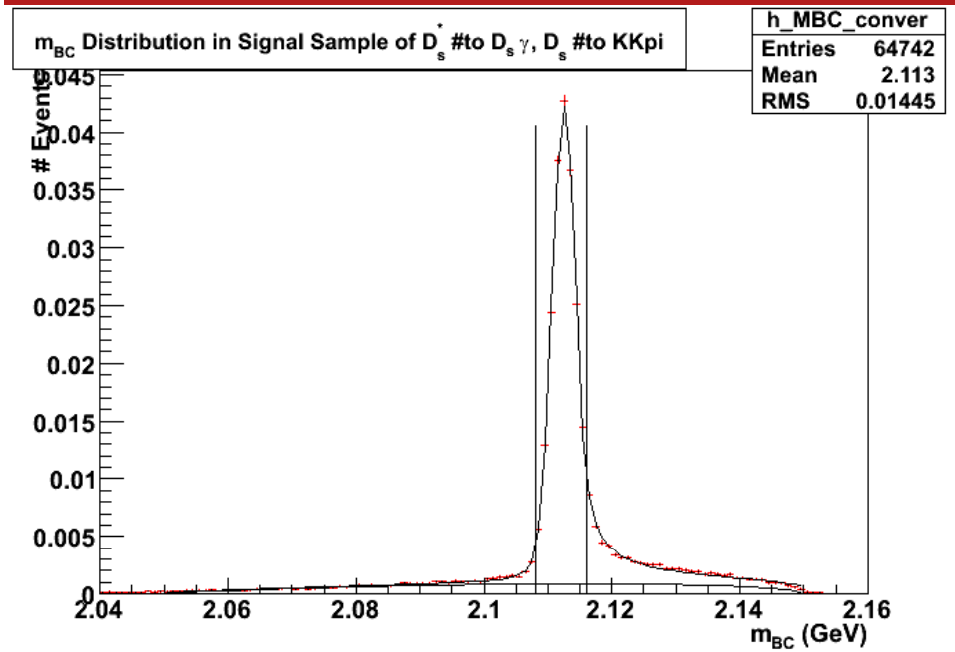
- #Signal Events = 4345
- I infer B(Ds*->Ds gamma) = 0.75 +- 0.05

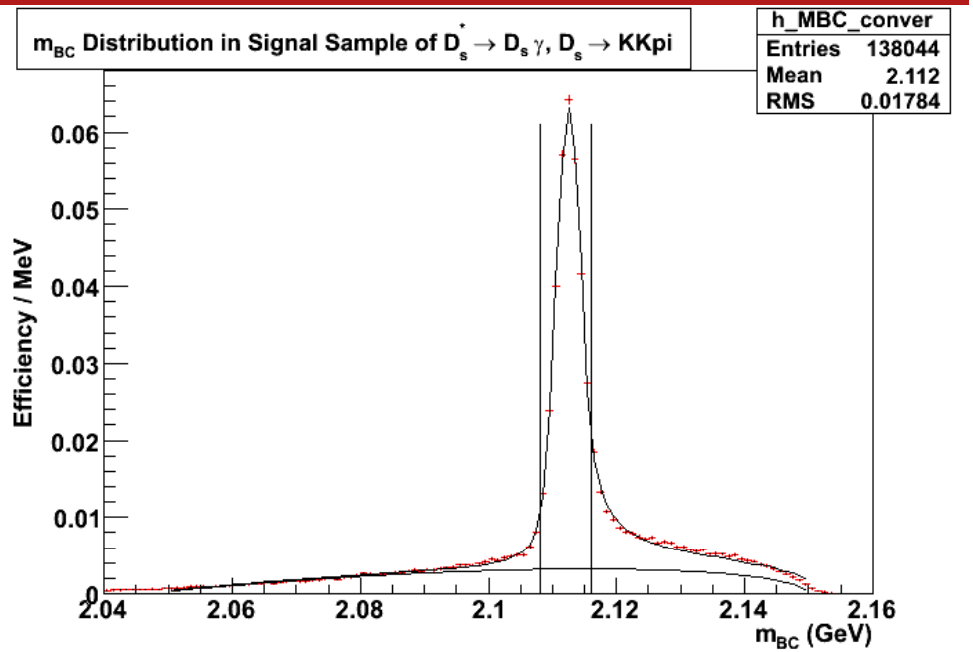
Widened dm Cut

- #Signal Events = 6702
- I infer B(Ds*->Ds gamma) = 0.76 +- 0.05.

- The PDG value is 0.942 +- 0.007.

Ds* -> Ds gamma Channel





- We start with a Ds*+ -> Ds+ gamma sample and reconstruct the Ds*+ through the Ds+.
- The Ds- on the other side is decaying generically.
- Plot fitted to a double-shouldered Crystal Ball function standing on an Argus function.

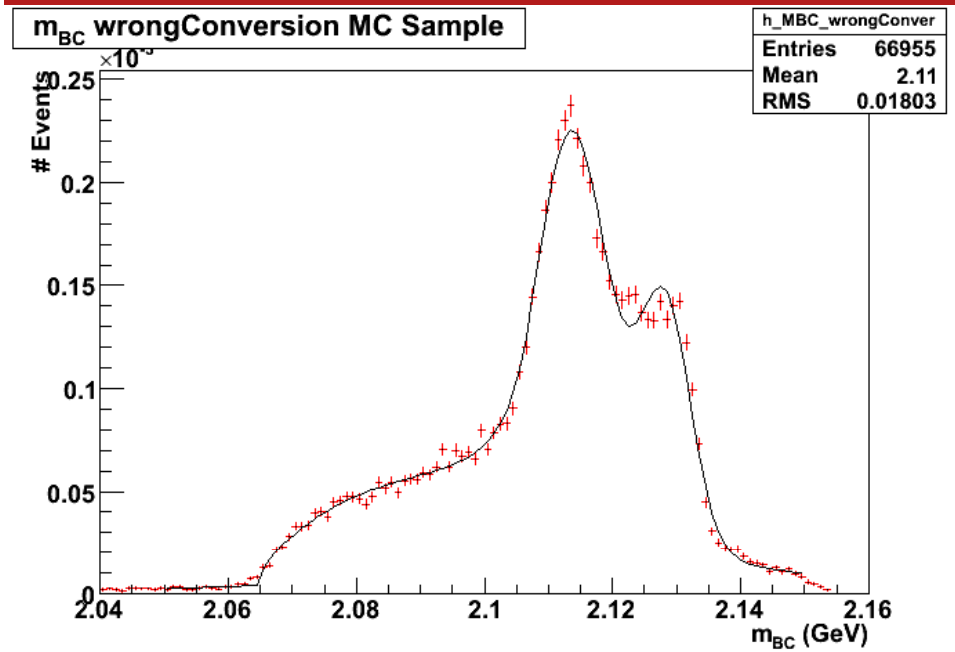
Standard dm Cut

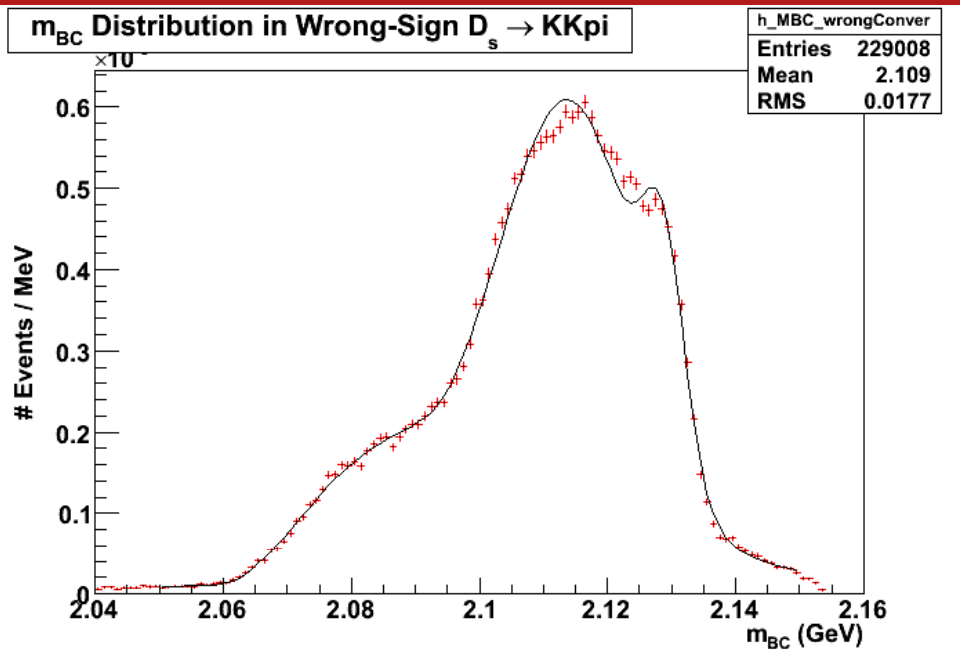
- The cut efficiency is found to be 19.2%.

Widened dm Cut

- The cut efficiency is found to be 29.8%

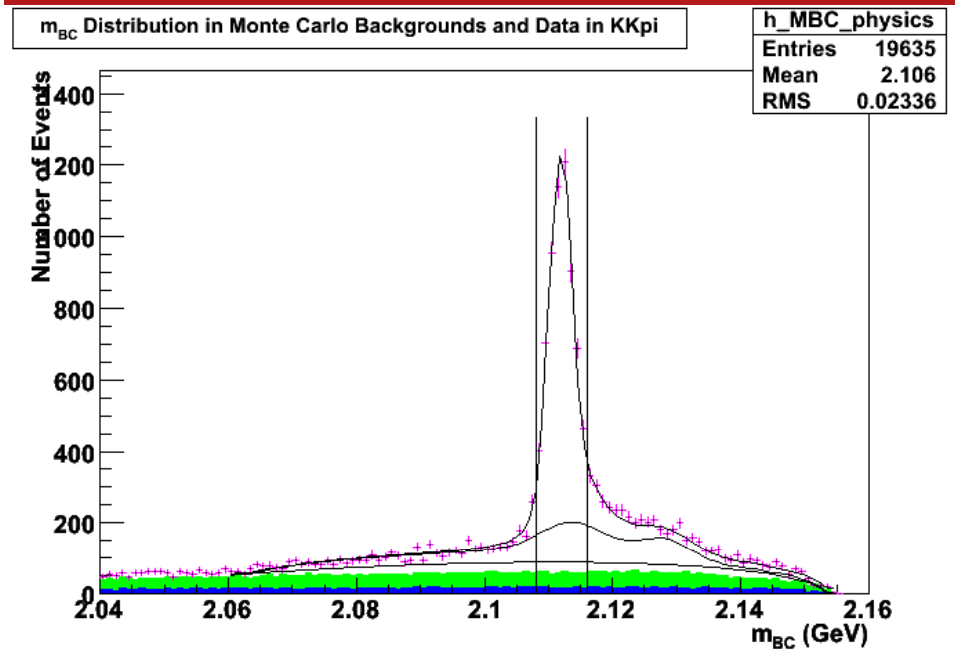
Ds* → Ds gamma Channel





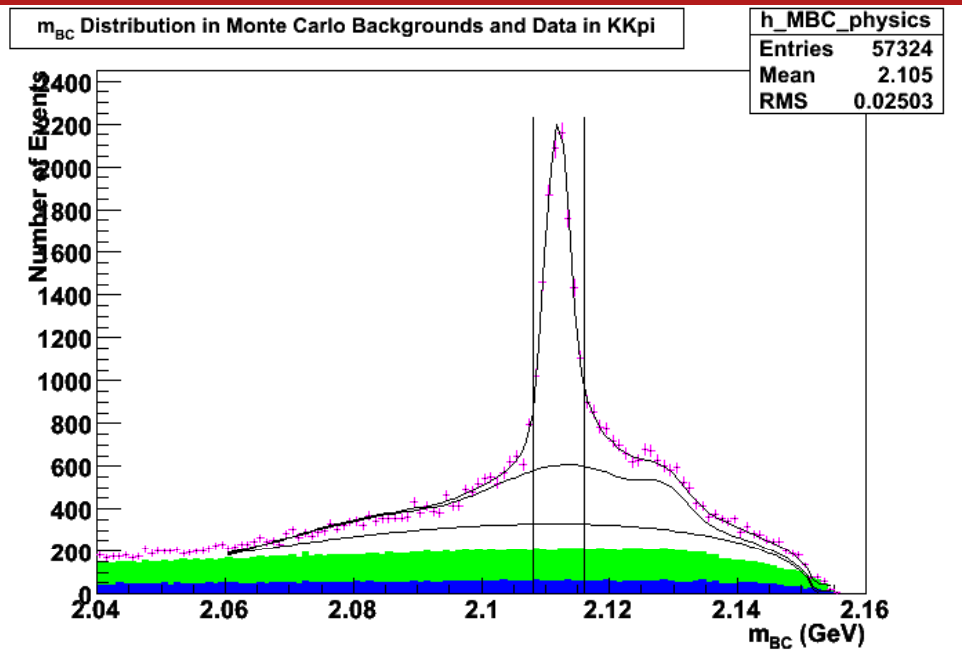
•We start with a Ds*+ → Ds+ gamma sample and reconstruct the Ds*+ through the Ds-→KKpi

Ds* -> Ds gamma Channel



Standard dm Cut

- #Signal Events = 4853
- I infer B(Ds*->Ds gamma) = 0.83 +- 0.05.



Widened dm Cut

- #Signal Events = 8051
- I infer B(Ds*->Ds gamma) = 0.89 +- 0.06.