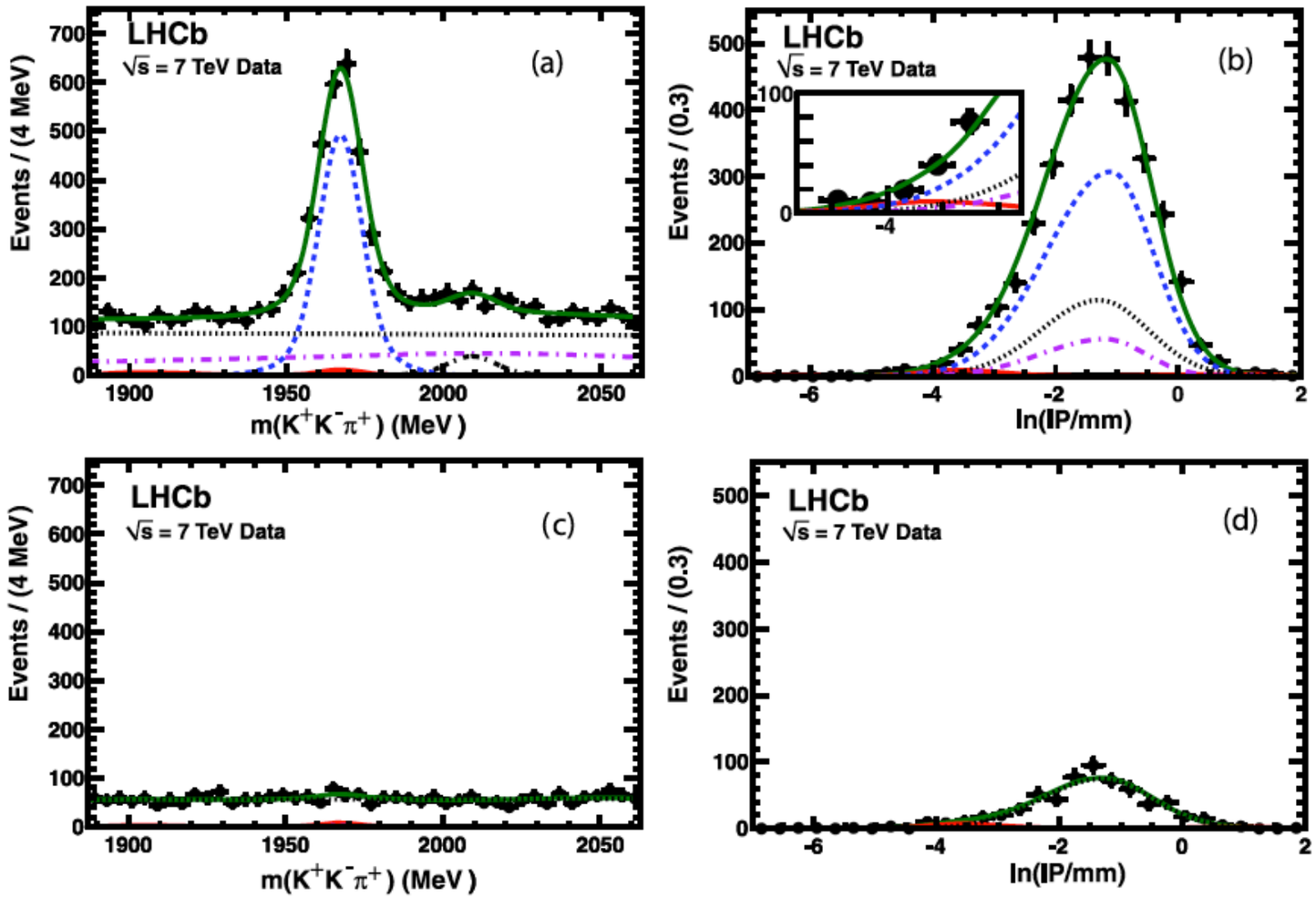

Fig. 1. The invariant $K^+K^-\pi^+$ mass spectra for events associated with a muon for the 3 pb^{-1} sample in the pseudorapidity interval $2 < \eta < 6$ for RS combinations (a) and WS combinations (c). Also shown is the natural logarithm of the IP distributions of the D_s^+ candidates for (b) RS and (d) WS D_s^+ muon candidate combinations. The labelling of the curves is the same on all four sub-figures. In descending order in (a): green-solid curve shows the total, the blue-dashed curve the Dfb signal, the black-dotted curve the sideband background, the purple-dot-dashed the misinterpreted $\Lambda_c^+ \to pK^-\pi^+$ contribution, the black dash-dash-dot curve the $D^{*+} \to \pi^+ D^0 \to K^+K^-\pi^+$ contribution, and the barely visible red-solid curves the Prompt yield. The Dfb signal, the Λ_c^+ reflection and D^{*+} signal are too small to be seen in the WS distributions. The insert in (b) shows an expanded view of the region populated by Prompt charm production. (For interpretation of the references to color in this figure legend, the reader is referred to the web version of this Letter.)

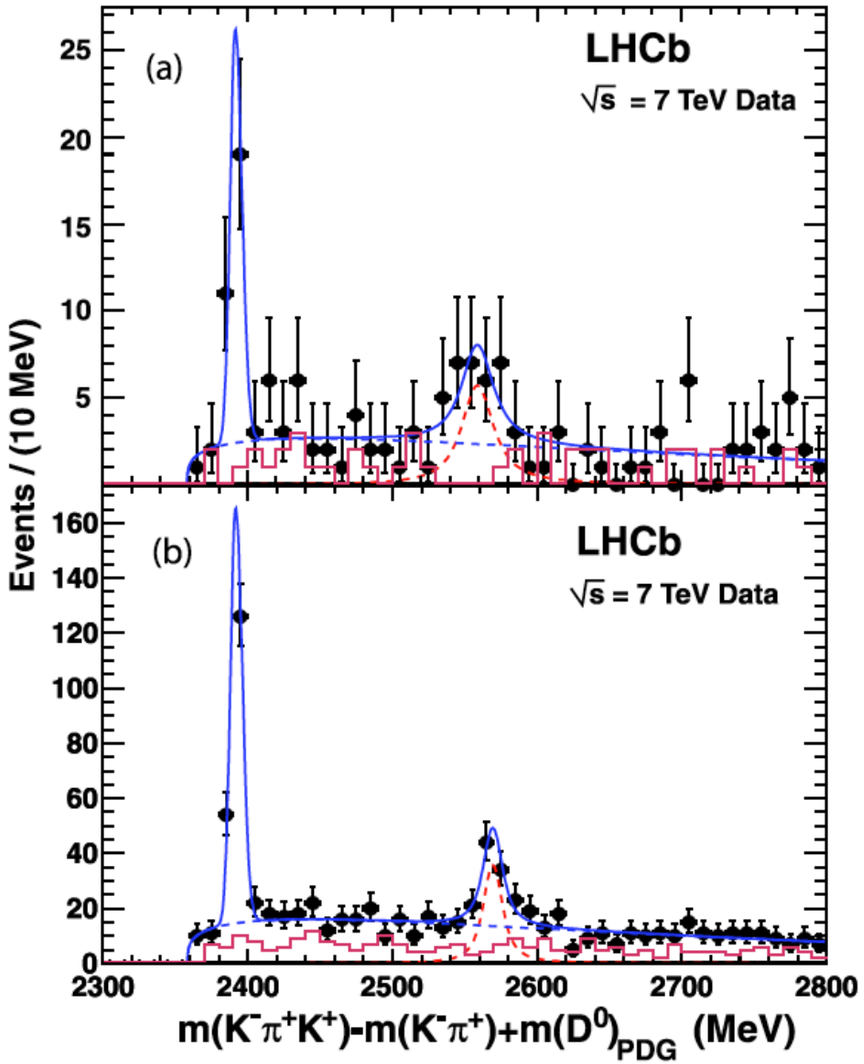

Fig. 2. The mass difference $m(K^-\pi^+K^+) - m(K^-\pi^+)$ added to the known D^0 mass for events with $K^-\pi^+$ invariant masses within ± 20 MeV of the D^0 mass (black points) in semileptonic decays. The histogram shows wrong-sign events with an additional K^- instead of a K^+. The curves are described in the text. (a) For the 3 pb^{-1} data sample and (b) for the 20 pb^{-1} sample.

Measurement with 1/1000 of the currently available data sample

$$\frac{\mathcal{B}(\bar{B}_s^0 \to D_{s1}^+ X \mu^- \bar{\nu})}{\mathcal{B}(\bar{B}_s^0 \to X \mu^- \bar{\nu})} = (5.4 \pm 1.2 \pm 0.5)\%,$$

$$\frac{\mathcal{B}(\bar{B}_s^0 \to D_{s2}^{*+} X \mu^- \bar{\nu})}{\mathcal{B}(\bar{B}_s^0 \to D_{s1}^+ X \mu^- \bar{\nu})} = 0.61 \pm 0.14 \pm 0.05.$$

$$\frac{\mathcal{B}(\bar{B}_s^0 \to D_{s2}^{*+} X \mu^- \bar{\nu})}{\mathcal{B}(\bar{B}_s^0 \to X \mu^- \bar{\nu})} = (3.3 \pm 1.0 \pm 0.4)\%,$$

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