Check List for Particle : $\boldsymbol{\Xi_b^-}$

April 19, 2009

Quantity	Us	PDG	EvtGen	Quantity	Us	PDG	EvtGen
PDG Code	5132			Mass	5792.9		
Width	0			Gen Name	`Xi_b-`		
Decay Length	0.000417 m.						

Latex Name	Ξ_b^-	Mass Gen.		Width Gen.		Type	baryon
Type	normal	Con. Mass	0	Rating	$***$	Variable Ratio	fixed
Stable	unstable	Spin	1/2	Charge	-1	Colour	0
Lower Cut	0	Upper cut	0	PDG link	s060		

- Is the description present and correct?

  The mass is taken from [**?**] . The lifetime is the experimentally measured value from [**?**].

  No branching ratios have been measured. We have therefore chosen to add a number of two body modes with branching ratios calculated from various theoretical papers and model the remaining modes using partonic decays. The ratios of the partonic decays were calculated using the colour factor for the relative rates of the leptonic and direct $b \to c$ decays, colour exchanged decays were added with one third of the rate for the direct decays. The rates of the different quarks produced in the weak decays were calculated using the CKM matrix elements.

- References?

Branching Ratio	Rating	Outgoing Particles	Description	Decayer	EvtGen
0.203900	**	s, $\bar{c}$, c, $(sd)_0$		Herwig::WeakPartonic::WeakPartonic100	
0.201600	**	d, $\bar{u}$, c, $(sd)_0$		Herwig::WeakPartonic::WeakPartonic100	
0.091300	**	c, $\bar{u}$, d, $(sd)_0$		Herwig::WeakPartonic::WeakPartonic100	
0.089460	**	c, $\bar{c}$, s, $(sd)_0$		Herwig::WeakPartonic::WeakPartonic100	
0.073200	**	Ξ_c^0, μ^-, $\bar{\nu}_\mu$		Herwig::SemiLeptonicBaryon::BaryonHeavy1	
0.073200	**	Ξ_c^0, e^-, $\bar{\nu}_e$		Herwig::SemiLeptonicBaryon::BaryonHeavy1	
0.043000	**	Ξ_c^0, D_s^{*-}		Herwig::BaryonFactorized::BottomBaryonVector	

Table 1: The decay modes of the Ξ_b^- (continues).

Branching Ratio	Rating	Outgoing Particles	Description	Decayer	EvtGen
0.037000	**	Ξ_c^0, $a_1^-(1260)$		Herwig::BaryonFactorized::BottomBaryonVector	
0.027000	**	Ξ_c^0, D_s^-		Herwig::BaryonFactorized::BottomBaryonScalar	
0.026000	**	Ξ_c^0, ρ^-		Herwig::BaryonFactorized::BottomBaryonVector	
0.023000	**	μ^-, $\bar{\nu}_\mu$, c, $(sd)_0$		Herwig::WeakPartonic::WeakPartonic100	
0.023000	**	e^-, $\bar{\nu}_e$, c, $(sd)_0$		Herwig::WeakPartonic::WeakPartonic100	
0.021100	**	Ξ_c^0, τ^-, $\bar{\nu}_\tau$		Herwig::SemiLeptonicBaryon::BaryonHeavy1	
0.012300	**	s, $\bar{u}$, c, $(sd)_0$		Herwig::WeakPartonic::WeakPartonic100	
0.012000	**	d, $\bar{c}$, c, $(sd)_0$		Herwig::WeakPartonic::WeakPartonic100	
0.011000	**	τ^-, $\bar{\nu}_\tau$, c, $(sd)_0$		Herwig::WeakPartonic::WeakPartonic100	
0.009000	**	Ξ_c^0, π^-		Herwig::BaryonFactorized::BottomBaryonScalar	
0.004800	**	c, $\bar{c}$, d, $(sd)_0$		Herwig::WeakPartonic::WeakPartonic100	
0.004800	**	c, $\bar{u}$, s, $(sd)_0$		Herwig::WeakPartonic::WeakPartonic100	
0.002200	**	s, $\bar{c}$, u, $(sd)_0$		Herwig::WeakPartonic::WeakPartonic100	
0.002200	**	d, $\bar{u}$, u, $(sd)_0$		Herwig::WeakPartonic::WeakPartonic100	
0.001500	**	Ξ_c^0, $D^{*-}(2010)$		Herwig::BaryonFactorized::BottomBaryonVector	
0.001500	**	Ξ_c^0, K^{*-}		Herwig::BaryonFactorized::BottomBaryonVector	
0.001000	**	Ξ^-, $J/\psi(1S)$		Herwig::BaryonFactorized::BottomBaryonVector	
0.001000	**	Ξ_c^0, D^-		Herwig::BaryonFactorized::BottomBaryonScalar	
0.000840	**	Ξ^-, $\psi(2S)$		Herwig::BaryonFactorized::BottomBaryonVector	
0.000800	**	μ^-, $\bar{\nu}_\mu$, u, $(sd)_0$		Herwig::WeakPartonic::WeakPartonic100	
0.000800	**	e^-, $\bar{\nu}_e$, u, $(sd)_0$		Herwig::WeakPartonic::WeakPartonic100	
0.000700	**	Ξ_c^0, K^-		Herwig::BaryonFactorized::BottomBaryonScalar	
0.000300	**	τ^-, $\bar{\nu}_\tau$, u, $(sd)_0$		Herwig::WeakPartonic::WeakPartonic100	
0.000200	**	Σ_c^0, K^-		Herwig::Hw64::DecayME0	
0.000100	**	$\Xi_c^{\prime 0}$, π^-		Herwig::Hw64::DecayME0	
0.000100	**	s, $\bar{u}$, u, $(sd)_0$		Herwig::WeakPartonic::WeakPartonic100	
0.000100	**	d, $\bar{c}$, u, $(sd)_0$		Herwig::WeakPartonic::WeakPartonic100	

Table 1: The decay modes of the Ξ_b^-.

Total branching ratio is 1.