

Heavy Flavor Averaging Group
September 2007

Compilation of B_s Rare Branching Fractions
All branching fractions are in units of 10^{-6}

In PDG2006 New since PDG2006 (preliminary) New since PDG2006 (published)

RPP#	Mode	PDG2006 Avg.	Belle	CDF	D0	New Avg.
9	$\pi^+\pi^-$	< 170		$0.53 \pm 0.31 \pm 0.40$		0.53 ± 0.51
15	$\phi\phi$	14 ± 8		$14_{-5}^{+6} \pm 6 \dagger$		14_{-7}^{+8}
16	π^+K^-	< 210		$5.0 \pm 0.75 \pm 1.0$		5.00 ± 1.25
17	K^+K^-	< 59	< 310	$24.4 \pm 1.4 \pm 4.6$		24.4 ± 4.8
22	$\gamma\gamma$	< 148	< 8.6			< 8.6
23	$\phi\gamma$	< 120	57_{-15-17}^{+18+12}			57_{-22}^{+21}
24	$\mu^+\mu^-$	< 0.15		< 0.047	< 0.075	< 0.047
26	$e^\pm\mu^\mp$	< 6.1		< 6.1		< 6.1
27	$\mu^+\mu^-\phi$	< 47		< 2.3	< 3.2 †	< 2.3

†Relative BF converted to absolute BF

Heavy Flavor Averaging Group
September 2007

Compilation of B_s^0 Rare Relative Branching Fractions (UL 90% CL)

In PDG2006 New since PDG2006 (preliminary) New since PDG2006 (published)

RPP#	Mode	PDG2006 Avg.	CDF	D0	New Avg.
9	$f_s \mathcal{B}(B_s^0 \rightarrow \pi^+ \pi^-) / f_d \mathcal{B}(B^0 \rightarrow K^+ \pi^-)$		$0.007 \pm 0.004 \pm 0.005$		0.007 ± 0.006
15	$\mathcal{B}(B_s^0 \rightarrow \phi \phi) / \mathcal{B}(B_s^0 \rightarrow J/\psi \phi)$		$(10_{-4}^{+5} \pm 1) \times 10^{-3}$		10_{-6}^{+7}
16	$f_s \mathcal{B}(B_s^0 \rightarrow K^+ \pi^-) / f_d \mathcal{B}(B_d^0 \rightarrow K^+ \pi^-)$		$0.066 \pm 0.010 \pm 0.010$		0.066 ± 0.014
17	$f_s \mathcal{B}(B_s^0 \rightarrow K^+ K^-) / f_d \mathcal{B}(B_d^0 \rightarrow K^+ \pi^-)$		$0.324 \pm 0.019 \pm 0.041$		0.324 ± 0.045
27	$\mathcal{B}(B_s^0 \rightarrow \mu^+ \mu^- \phi) / \mathcal{B}(B_s^0 \rightarrow J/\psi \phi)$		$1.24 \pm 0.60 \pm 0.15$	$< 3.5 \times 10^{-3}$	1.24 ± 0.62

Charmless B_s Decays: CDF References

- [1] CDF Collaboration, talk by K. Tollefson at Lepton-Photon 2007, Korea, Aug. 2007.
- [2]
- [3] CDF Collaboration (F. Abe *et al.*), Phys. Rev. Lett. **81**, 5742 (1998).
- [4] CDF Collaboration, talk by M. Rescigno at CKM 2006, Nagoya, Japan, Dec. 2006.
- [5] CDF Collaboration (D. Acosta *et al.*), Phys. Rev. Lett. **95**, 031801 (2005).
- [6]
- [7] CDF Collaboration, M. Morello, hep-ex/0612018 (Beauty 2006 contributed paper).
- [8]

[9] $D\bar{D}$ References

- [10] $D\bar{D}$ Collaboration (V. Abazov *et al.*), $D\bar{D}$ Note 5344-CONF (2007).
- [11] $D\bar{D}$ Collaboration (V. Abazov *et al.*), Phys. Rev. D **74**, 031107 (2006).
- [12]
- [13]
- [14]
- [15]
- [16]
- [17]
- [18]

[19] Belle References

- [20] Belle Collaboration (A. Drutskoy *et al.*), Phys. Rev. D **76**, 012002 (2007).
- [21] Belle Collaboration (K. Arinstein *et al.*), BELLE-CONF-0734, contributed paper to LP07.