

Heavy Flavor Averaging Group
Sept. 2008

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

In PDG2008 New since PDG2008 (preliminary) New since PDG2008 (published)

RPP#	Mode	PDG2008 Avg.	Belle	CDF	D0	New Avg.
13	$\pi^+\pi^-$	< 170		$0.53 \pm 0.31 \pm 0.40$		0.53 ± 0.51
19	$\phi\phi$	14 ± 8		$14_{-5}^{+6} \pm 6 \dagger$		14_{-7}^{+8}
20	π^+K^-	< 210		$5.0 \pm 0.75 \pm 1.0$		5.00 ± 1.25
21	K^+K^-	33 ± 9	< 310	$24.4 \pm 1.4 \pm 4.6$		24.4 ± 4.8
26	$\gamma\gamma$	< 5.3	< 8.7			< 8.7
27	$\phi\gamma$	< 120	57_{-15}^{+18+12}			57_{-18}^{+21}
28	$\mu^+\mu^-$	< 0.047		< 0.047	< 0.075	< 0.047
29	e^+e^-	< 54		< 0.28		< 0.28
30	$e^\pm\mu^\mp$	< 6.1		< 0.20		< 0.20
31	$\mu^+\mu^-\phi$	< 3.2		< 5.0	$< 3.2 \dagger$	$< 3.2 \dagger$

\dagger Relative BF converted to absolute BF

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

In PDG2008 **New since PDG2008 (preliminary)** **New since PDG2008 (published)**

RPP#	Mode	PDG2008 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 ± 0.004 ± 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 ± 0.010 ± 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 ± 0.019 ± 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 ± 0.60 ± 0.15	$< 3.5 \times 10^{-3}$	1.24 ± 0.62

Charmless B_s Decays: CDF References

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