

Table 1: Direct experimental measurements of $\phi_s^{c\bar{c}s}$, $\Delta\Gamma_s$ and Γ_s using $B_s^0 \rightarrow J/\psi \phi$, $J/\psi K^+ K^-$, $J/\psi \pi^+ \pi^-$ and $D_s^+ D_s^-$ decays. Only the solution with $\Delta\Gamma_s > 0$ is shown, since the two-fold ambiguity has been resolved in Ref. [1]. The first error is due to statistics, the second one to systematics. The last line gives our average.

Exp.	Mode	Dataset	$\phi_s^{c\bar{c}s}$	$\Delta\Gamma_s$ (ps ⁻¹)	Ref.
CDF	$J/\psi \phi$	9.6 fb ⁻¹	$[-0.60, 0.12]$, 68% CL	$0.068 \pm 0.026 \pm 0.009$	[2]
D0	$J/\psi \phi$	8.0 fb ⁻¹	$-0.55^{+0.38}_{-0.36}$	$0.163^{+0.065}_{-0.064}$	[3]
ATLAS	$J/\psi \phi$	4.9 fb ⁻¹	$+0.12 \pm 0.25 \pm 0.05$	$0.053 \pm 0.021 \pm 0.010$	[4]
CMS	$J/\psi \phi$	20 fb ⁻¹	$-0.03 \pm 0.11 \pm 0.03$	$0.096 \pm 0.014 \pm 0.007$	[5] ^p
LHCb	$J/\psi K^+ K^-$	3.0 fb ⁻¹	$-0.058 \pm 0.049 \pm 0.006$	$0.0805 \pm 0.0091 \pm 0.0033$	[6]
LHCb	$J/\psi \pi^+ \pi^-$	3.0 fb ⁻¹	$+0.070 \pm 0.068 \pm 0.008$	—	[7]
LHCb	$J/\psi h^+ h^-$	3.0 fb ⁻¹	$-0.010 \pm 0.039(\text{tot})$	—	[6] ^a
LHCb	$D_s^+ D_s^-$	3.0 fb ⁻¹	$+0.02 \pm 0.17 \pm 0.02$	—	[8]
All combined			-0.015 ± 0.035	$+0.081 \pm 0.007$	

^a LHCb combination of $J/\psi K^+ K^-$ [6] and $J/\psi \pi^+ \pi^-$ [7].

^p Preliminary.

References

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- [5] CMS collaboration, CMS note CMS-PAS-BPH-13-012, 22 July 2014, <https://cds.cern.ch/record/1744869>.
- [6] R. Aaij *et al.* (LHCb collaboration), submitted to Phys. Rev. Lett. (2014), [arXiv:1411.3104 \[hep-ex\]](#); this replaces any $B_s^0 \rightarrow J/\psi K^+ K^-$, $B_s^0 \rightarrow J/\psi \phi$ or combined $\phi_s^{c\bar{c}s}$ result from Ref. [9].

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