$h_c(1P)$

$I^G(J^{PC}) = 0^-(1^{+-})$

Quantum numbers are quark model prediction, $C = -$ established by $\eta_c \gamma$ decay.

$h_c(1P)$ MASS

VALUE (MeV)	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
3525.38±0.11 OUR AVERAGE					
3525.31±0.11±0.14	832	[1] ABLIKIM	12N	BES3	$\psi(2S) \rightarrow \pi^0 \gamma$ hadrons
3525.40±0.13±0.18	3679	ABLIKIM	10B	BES3	$\psi(2S) \rightarrow \pi^0 \gamma \eta_c$
3525.20±0.18±0.12	1282	[2] DOBBS	08A	CLEO	$\psi(2S) \rightarrow \pi^0 \eta_c \gamma$
3525.8 ±0.2 ±0.2	13	ANDREOTTI	05B	E835	$\overline{p} p \rightarrow \eta_c \gamma$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
3525.6 ±0.5	92^{+23}_{-22}	ADAMS	09	CLEO	$\psi(2S) \rightarrow 2(\pi^+ \pi^- \pi^0)$
3524.4 ±0.6 ±0.4	168 ± 40	[3] ROSNER	05	CLEO	$\psi(2S) \rightarrow \pi^0 \eta_c \gamma$
3527 ±8	42	ANTONIAZZI	94	E705	300 $\pi^\pm$, pLi $\rightarrow J/\psi \pi^0$X
3526.28±0.18±0.19	59	[4] ARMSTRONG	92D	E760	$\overline{p} p \rightarrow J/\psi \pi^0$
3525.4 ±0.8 ±0.4	5	BAGLIN	86	SPEC	$\overline{p} p \rightarrow J/\psi$X

[1] With floating width.

[2] Combination of exclusive and inclusive analyses for the reaction $\psi(2S) \rightarrow \pi^0 h_c \rightarrow \pi^0 \eta_c \gamma$. This result is the average of DOBBS 08A and ROSNER 05.

[3] Superseded by DOBBS 08A.

[4] Mass central value and systematic error recalculated by us according to Eq. (16) in ARMSTRONG 93B, using the value for the $\psi(2S)$ mass from AULCHENKO 03.

$h_c(1P)$ WIDTH

VALUE (MeV)	*CL%*	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
0.70±0.28±0.22		832	[1] ABLIKIM	12N	BES3	$\psi(2S) \rightarrow \pi^0 \gamma$ hadrons
• • • We do not use the following data for averages, fits, limits, etc. • • •						
< 1.44	90	3679	[2] ABLIKIM	10B	BES3	$\psi(2S) \rightarrow \pi^0 \gamma \eta_c$
< 1		13	ANDREOTTI	05B	E835	$\overline{p} p \rightarrow \eta_c \gamma$
< 1.1	90	59	ARMSTRONG	92D	E760	$\overline{p} p \rightarrow J/\psi \pi^0$

[1] With floating mass.

[2] The central value is $\Gamma = 0.73 \pm 0.45 \pm 0.28$ MeV.

$h_c(1P)$ DECAY MODES

	Mode	Fraction (Γ_i/Γ)	Confidence level
Γ_1	$J/\psi(1S)\pi^0$		
Γ_2	$J/\psi(1S)\pi\pi$	not seen	
Γ_3	$J/\psi(1S)\pi^+\pi^-$	$< 2.3 \times 10^{-3}$	90%
Γ_4	$p\overline{p}$	$< 1.5 \times 10^{-4}$	90%
Γ_5	$p\overline{p}\pi^+\pi^-$	$(2.9\pm0.6) \times 10^{-3}$	

Γ_6	$p\overline{p}\pi^0\pi^0$	$< 5 \times 10^{-4}$	90%
Γ_7	$\pi^+\pi^-\pi^0$	$(1.6\pm0.5)\times10^{-3}$	
Γ_8	$\pi^+\pi^-\pi^0\eta$	$(7.2\pm2.3)\times10^{-3}$	
Γ_9	$2\pi^+2\pi^-\pi^0$	$(8.1\pm1.8)\times10^{-3}$	
Γ_{10}	$3\pi^+3\pi^-\pi^0$	$< 9 \times 10^{-3}$	90%
Γ_{11}	$K^+K^-\pi^+\pi^-$	$< 6 \times 10^{-4}$	90%
Γ_{12}	$K^+K^-\pi^+\pi^-\pi^0$	$(3.2\pm0.8)\times10^{-3}$	
Γ_{13}	$K^+K^-\pi^+\pi^-\eta$	$< 2.3 \times 10^{-3}$	90%
Γ_{14}	$K^+K^-\pi^0$	$< 6 \times 10^{-4}$	90%
Γ_{15}	$K^+K^-\pi^0\eta$	$< 2.1 \times 10^{-3}$	90%
Γ_{16}	$K^+K^-\eta$	$< 9 \times 10^{-4}$	90%
Γ_{17}	$2K^+2K^-\pi^0$	$< 2.4 \times 10^{-4}$	90%
Γ_{18}	$K^0_S K^\pm\pi^\mp$	$< 6 \times 10^{-4}$	90%
Γ_{19}	$K^0_S K^\pm\pi^\mp\pi^+\pi^-$	$(2.8\pm1.0)\times10^{-3}$	

Radiative decays

Γ_{20}	$\gamma\eta$	$(4.7\pm2.1)\times10^{-4}$	
Γ_{21}	$\gamma\eta'(958)$	$(1.5\pm0.4)\times10^{-3}$	
Γ_{22}	$\gamma\eta_c(1S)$	(50 ± 9) %	

$h_c(1P)$ PARTIAL WIDTHS

$h_c(1P)$ $\Gamma(i)\Gamma(\overline{p}p)/\Gamma(total)$

$\Gamma(\gamma\eta_c(1S)) \times \Gamma(p\overline{p})/\Gamma_{total}$ — $\Gamma_{22}\Gamma_4/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID	TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
12.0±4.5	13	[1] ANDREOTTI 05B	E835	$\overline{p}p \rightarrow \eta_c\gamma$

[1] Assuming $\Gamma = 1$ MeV.

$h_c(1P)$ BRANCHING RATIOS

$\Gamma(J/\psi(1S)\pi\pi)/\Gamma(J/\psi(1S)\pi^0)$ — Γ_2/Γ_1

VALUE	CL%	DOCUMENT ID	TECN	COMMENT
<0.18	90	ARMSTRONG 92D	E760	$\overline{p}p \rightarrow J/\psi\pi^0$

$\Gamma(J/\psi(1S)\pi^+\pi^-)/\Gamma_{total}$ — Γ_3/Γ

VALUE	CL%	DOCUMENT ID	TECN	COMMENT
$<2.3\times10^{-3}$	90	[1] ABLIKIM 18M	BES3	$\psi(2S) \rightarrow \pi^0\pi^+\pi^- J/\psi$

[1] ABLIKIM 18M reports $[\Gamma(h_c(1P) \rightarrow J/\psi(1S)\pi^+\pi^-)/\Gamma_{total}] \times [B(\psi(2S) \rightarrow h_c(1P)\pi^0)] < 2.0\times10^{-6}$ which we divide by our best value $B(\psi(2S) \rightarrow h_c(1P)\pi^0) = 8.6\times10^{-4}$.

$\Gamma(p\overline{p})/\Gamma_{total}$ Γ_4/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<1.5 \times 10^{-4}$	90	[1] ABLIKIM	13V	BES3	$\psi(2S) \rightarrow \gamma p\overline{p}$

[1] ABLIKIM 13V reports $[\Gamma(h_c(1P) \rightarrow p\overline{p})/\Gamma_{total}] \times [B(\psi(2S) \rightarrow h_c(1P)\pi^0)] < 1.3 \times 10^{-7}$ which we divide by our best value $B(\psi(2S) \rightarrow h_c(1P)\pi^0) = 8.6 \times 10^{-4}$.

$\Gamma(\pi^+\pi^-\pi^0)/\Gamma_{total}$ Γ_7/Γ

VALUE (units 10^{-3})	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
$1.6 \pm 0.5 \pm 0.2$		101	[1] ABLIKIM	19AG	BES3	$\psi(2S) \rightarrow \pi^0 h_c(1P)$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
<2.2	90		[2] ADAMS	09	CLEO	$\psi(2S) \rightarrow \pi^0 \gamma \eta_c$

[1] ABLIKIM 19AG reports $[\Gamma(h_c(1P) \rightarrow \pi^+\pi^-\pi^0)/\Gamma_{total}] \times [B(\psi(2S) \rightarrow h_c(1P)\pi^0)] = (1.38 \pm 0.35 \pm 0.17) \times 10^{-6}$ which we divide by our best value $B(\psi(2S) \rightarrow h_c(1P)\pi^0) = (8.6 \pm 1.3) \times 10^{-4}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[2] ADAMS 09 reports $[\Gamma(h_c(1P) \rightarrow \pi^+\pi^-\pi^0)/\Gamma_{total}] \times [B(\psi(2S) \rightarrow h_c(1P)\pi^0)] < 0.19 \times 10^{-5}$ which we divide by our best value $B(\psi(2S) \rightarrow h_c(1P)\pi^0) = 8.6 \times 10^{-4}$.

$\Gamma(\pi^+\pi^-\pi^0\eta)/\Gamma_{total}$ Γ_8/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
$7.2 \pm 2.0 \pm 1.0$	35	[1] ABLIKIM	20AH	BES3	$\psi(2S) \rightarrow \pi^0 h_c(1P)$

[1] ABLIKIM 20AH reports $[\Gamma(h_c(1P) \rightarrow \pi^+\pi^-\pi^0\eta)/\Gamma_{total}] \times [B(\psi(2S) \rightarrow h_c(1P)\pi^0)] = (6.2 \pm 1.6 \pm 0.7) \times 10^{-6}$ which we divide by our best value $B(\psi(2S) \rightarrow h_c(1P)\pi^0) = (8.6 \pm 1.3) \times 10^{-4}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(2\pi^+2\pi^-\pi^0)/\Gamma_{total}$ Γ_9/Γ

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
0.81 ± 0.18 OUR AVERAGE					
$0.74 \pm 0.14 \pm 0.11$	254	[1] ABLIKIM	19AG	BES3	$\psi(2S) \rightarrow \pi^0 h_c(1P)$
$2.2^{+0.8}_{-0.6} \pm 0.3$	92	[2] ADAMS	09	CLEO	$\psi(2S) \rightarrow \pi^0 \gamma \eta_c$

[1] ABLIKIM 19AG reports $[\Gamma(h_c(1P) \rightarrow 2\pi^+2\pi^-\pi^0)/\Gamma_{total}] \times [B(\psi(2S) \rightarrow h_c(1P)\pi^0)] = (6.40 \pm 0.81 \pm 0.87) \times 10^{-6}$ which we divide by our best value $B(\psi(2S) \rightarrow h_c(1P)\pi^0) = (8.6 \pm 1.3) \times 10^{-4}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[2] ADAMS 09 reports $[\Gamma(h_c(1P) \rightarrow 2\pi^+2\pi^-\pi^0)/\Gamma_{total}] \times [B(\psi(2S) \rightarrow h_c(1P)\pi^0)] = (1.88^{+0.48}_{-0.45}{}^{+0.47}_{-0.30}) \times 10^{-5}$ which we divide by our best value $B(\psi(2S) \rightarrow h_c(1P)\pi^0) = (8.6 \pm 1.3) \times 10^{-4}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(3\pi^+3\pi^-\pi^0)/\Gamma_{total}$ Γ_{10}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<9 \times 10^{-3}$	90	[1] ABLIKIM	19AG	BES3	$\psi(2S) \rightarrow \pi^0 h_c(1P)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

<0.029	90	[2] ADAMS	09	CLEO	$\psi(2S) \to \pi^0 \gamma \eta_c$

[1] ABLIKIM 19AG reports $[\Gamma(h_c(1P) \to 3\pi^+ 3\pi^- \pi^0)/\Gamma_{total}] \times [B(\psi(2S) \to h_c(1P)\pi^0)] < 7.5 \times 10^{-6}$ which we divide by our best value $B(\psi(2S) \to h_c(1P)\pi^0) = 8.6 \times 10^{-4}$.

[2] ADAMS 09 reports $[\Gamma(h_c(1P) \to 3\pi^+ 3\pi^- \pi^0)/\Gamma_{total}] \times [B(\psi(2S) \to h_c(1P)\pi^0)] < 2.5 \times 10^{-5}$ which we divide by our best value $B(\psi(2S) \to h_c(1P)\pi^0) = 8.6 \times 10^{-4}$.

$\Gamma(p\overline{p}\pi^+\pi^-)/\Gamma_{total}$ Γ_5/Γ

VALUE (units 10^{-3})	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
2.9±0.5±0.4	230	[1] ABLIKIM	19AG	BES3	$\psi(2S) \to \pi^0 h_c(1P)$

[1] ABLIKIM 19AG reports $[\Gamma(h_c(1P) \to p\overline{p}\pi^+\pi^-)/\Gamma_{total}] \times [B(\psi(2S) \to h_c(1P)\pi^0)] = (2.49 \pm 0.27 \pm 0.28) \times 10^{-6}$ which we divide by our best value $B(\psi(2S) \to h_c(1P)\pi^0) = (8.6 \pm 1.3) \times 10^{-4}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(p\overline{p}\pi^0\pi^0)/\Gamma_{total}$ Γ_6/Γ

VALUE	*CL%*	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
<5 × 10⁻⁴	90	12	[1] ABLIKIM	20AH	BES3	$\psi(2S) \to \pi^0 h_c(1P)$

[1] ABLIKIM 20AH reports $[\Gamma(h_c(1P) \to p\overline{p}\pi^0\pi^0)/\Gamma_{total}] \times [B(\psi(2S) \to h_c(1P)\pi^0)] < 4.4 \times 10^{-7}$ which we divide by our best value $B(\psi(2S) \to h_c(1P)\pi^0) = 8.6 \times 10^{-4}$.

$\Gamma(K^+K^-\pi^+\pi^-)/\Gamma_{total}$ Γ_{11}/Γ

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<6 × 10⁻⁴	90	[1] ABLIKIM	19AG	BES3	$\psi(2S) \to \pi^0 h_c(1P)$

[1] ABLIKIM 19AG reports $[\Gamma(h_c(1P) \to K^+K^-\pi^+\pi^-)/\Gamma_{total}] \times [B(\psi(2S) \to h_c(1P)\pi^0)] < 0.5 \times 10^{-6}$ which we divide by our best value $B(\psi(2S) \to h_c(1P)\pi^0) = 8.6 \times 10^{-4}$.

$\Gamma(K^+K^-\pi^+\pi^-\pi^0)/\Gamma_{total}$ Γ_{12}/Γ

VALUE (units 10^{-3})	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
3.2±0.7±0.5	80	[1] ABLIKIM	20AH	BES3	$\psi(2S) \to \pi^0 h_c(1P)$

[1] ABLIKIM 20AH reports $[\Gamma(h_c(1P) \to K^+K^-\pi^+\pi^-\pi^0)/\Gamma_{total}] \times [B(\psi(2S) \to h_c(1P)\pi^0)] = (2.8 \pm 0.5 \pm 0.3) \times 10^{-6}$ which we divide by our best value $B(\psi(2S) \to h_c(1P)\pi^0) = (8.6 \pm 1.3) \times 10^{-4}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(K^+K^-\pi^+\pi^-\eta)/\Gamma_{total}$ Γ_{13}/Γ

VALUE	*CL%*	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
<2.3 × 10⁻³	90	24	[1] ABLIKIM	20AH	BES3	$\psi(2S) \to \pi^0 h_c(1P)$

[1] ABLIKIM 20AH reports $[\Gamma(h_c(1P) \to K^+K^-\pi^+\pi^-\eta)/\Gamma_{total}] \times [B(\psi(2S) \to h_c(1P)\pi^0)] < 2.0 \times 10^{-6}$ which we divide by our best value $B(\psi(2S) \to h_c(1P)\pi^0) = 8.6 \times 10^{-4}$.

$\Gamma(K^+ K^- \pi^0)/\Gamma_{total}$ — Γ_{14}/Γ

VALUE	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
<6 × 10⁻⁴	90	20	[1] ABLIKIM	20AH	BES3	$\psi(2S) \to \pi^0 h_c(1P)$

[1] ABLIKIM 20AH reports $[\Gamma(h_c(1P) \to K^+ K^- \pi^0)/\Gamma_{total}] \times [B(\psi(2S) \to h_c(1P)\pi^0)] < 4.8\times10^{-7}$ which we divide by our best value $B(\psi(2S) \to h_c(1P)\pi^0) = 8.6\times10^{-4}$.

$\Gamma(2K^+ 2K^- \pi^0)/\Gamma_{total}$ — Γ_{17}/Γ

VALUE	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
<2.4 × 10⁻⁴	90	11	[1] ABLIKIM	20AH	BES3	$\psi(2S) \to \pi^0 h_c(1P)$

[1] ABLIKIM 20AH reports $[\Gamma(h_c(1P) \to 2K^+ 2K^- \pi^0)/\Gamma_{total}] \times [B(\psi(2S) \to h_c(1P)\pi^0)] < 2.1 \times 10^{-7}$ which we divide by our best value $B(\psi(2S) \to h_c(1P)\pi^0) = 8.6 \times 10^{-4}$.

$\Gamma(K^+ K^- \pi^0 \eta)/\Gamma_{total}$ — Γ_{15}/Γ

VALUE	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
<2.1 × 10⁻³	90	20	[1] ABLIKIM	20AH	BES3	$\psi(2S) \to \pi^0 h_c(1P)$

[1] ABLIKIM 20AH reports $[\Gamma(h_c(1P) \to K^+ K^- \pi^0 \eta)/\Gamma_{total}] \times [B(\psi(2S) \to h_c(1P)\pi^0)] < 1.8\times10^{-6}$ which we divide by our best value $B(\psi(2S) \to h_c(1P)\pi^0) = 8.6\times10^{-4}$.

$\Gamma(K^+ K^- \eta)/\Gamma_{total}$ — Γ_{16}/Γ

VALUE	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
<9 × 10⁻⁴	90	18	[1] ABLIKIM	20AH	BES3	$\psi(2S) \to \pi^0 h_c(1P)$

[1] ABLIKIM 20AH reports $[\Gamma(h_c(1P) \to K^+ K^- \eta)/\Gamma_{total}] \times [B(\psi(2S) \to h_c(1P)\pi^0)] < 7.5\times10^{-7}$ which we divide by our best value $B(\psi(2S) \to h_c(1P)\pi^0) = 8.6\times10^{-4}$.

$\Gamma(K^0_S K^\pm \pi^\mp)/\Gamma_{total}$ — Γ_{18}/Γ

VALUE	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
<6 × 10⁻⁴	90	17	[1] ABLIKIM	20AH	BES3	$\psi(2S) \to \pi^0 h_c(1P)$

[1] ABLIKIM 20AH reports $[\Gamma(h_c(1P) \to K^0_S K^\pm \pi^\mp)/\Gamma_{total}] \times [B(\psi(2S) \to h_c(1P)\pi^0)] < 4.8\times10^{-7}$ which we divide by our best value $B(\psi(2S) \to h_c(1P)\pi^0) = 8.6\times10^{-4}$.

$\Gamma(K^0_S K^\pm \pi^\mp \pi^+ \pi^-)/\Gamma_{total}$ — Γ_{19}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
2.8±0.9±0.4	41	[1] ABLIKIM	20AH	BES3	$\psi(2S) \to \pi^0 h_c(1P)$

[1] ABLIKIM 20AH reports $[\Gamma(h_c(1P) \to K^0_S K^\pm \pi^\mp \pi^+ \pi^-)/\Gamma_{total}] \times [B(\psi(2S) \to h_c(1P)\pi^0)] = (2.4 \pm 0.7 \pm 0.3) \times 10^{-6}$ which we divide by our best value $B(\psi(2S) \to h_c(1P)\pi^0) = (8.6 \pm 1.3) \times 10^{-4}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

RADIATIVE DECAYS

$\Gamma(\gamma\eta)/\Gamma_{total}$ — Γ_{20}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
4.7±1.5±1.4	18	ABLIKIM	16I	BES3	$\psi(2S) \to \pi^0 \gamma\eta$

$\Gamma(\gamma\eta'(958))/\Gamma_{total}$ Γ_{21}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
1.52±0.27±0.29	44	ABLIKIM	16I	BES3	$\psi(2S) \to \pi^0\gamma\eta'(958)$

$\Gamma(\gamma\eta_c(1S))/\Gamma_{total}$ Γ_{22}/Γ

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
50± 9 OUR AVERAGE					
53± 7±8	3679	[1] ABLIKIM	10B	BES3	$\psi(2S) \to \pi^0\eta_c\gamma$
48± 6±7		[2] DOBBS	08A	CLEO	$\psi(2S) \to \pi^0\eta_c\gamma$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
48± 6±7	1282	[3] DOBBS	08A	CLEO	$\psi(2S) \to \pi^0\eta_c\gamma$
46±12±7	168	[4] ROSNER	05	CLEO	$\psi(2S) \to \pi^0\eta_c\gamma$

[1] ABLIKIM 10B reports $[\Gamma(h_c(1P) \to \gamma\eta_c(1S))/\Gamma_{total}] \times [B(\psi(2S) \to h_c(1P)\pi^0)] = (4.58 \pm 0.40 \pm 0.50) \times 10^{-4}$ which we divide by our best value $B(\psi(2S) \to h_c(1P)\pi^0) = (8.6 \pm 1.3) \times 10^{-4}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[2] Average of DOBBS 08A and ROSNER 05. DOBBS 08A reports $[\Gamma(h_c(1P) \to \gamma\eta_c(1S))/\Gamma_{total}] \times [B(\psi(2S) \to h_c(1P)\pi^0)] = (4.16 \pm 0.30 \pm 0.37) \times 10^{-4}$ which we divide by our best value $B(\psi(2S) \to h_c(1P)\pi^0) = (8.6 \pm 1.3) \times 10^{-4}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[3] DOBBS 08A reports $[\Gamma(h_c(1P) \to \gamma\eta_c(1S))/\Gamma_{total}] \times [B(\psi(2S) \to h_c(1P)\pi^0)] = (4.19 \pm 0.32 \pm 0.45) \times 10^{-4}$ which we divide by our best value $B(\psi(2S) \to h_c(1P)\pi^0) = (8.6 \pm 1.3) \times 10^{-4}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[4] ROSNER 05 reports $[\Gamma(h_c(1P) \to \gamma\eta_c(1S))/\Gamma_{total}] \times [B(\psi(2S) \to h_c(1P)\pi^0)] = (4.0 \pm 0.8 \pm 0.7) \times 10^{-4}$ which we divide by our best value $B(\psi(2S) \to h_c(1P)\pi^0) = (8.6 \pm 1.3) \times 10^{-4}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$h_c(1P)$ REFERENCES

ABLIKIM	20AH	PR D102 112007	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	19AG	PR D99 072008	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	18M	PR D97 052008	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	16I	PRL 116 251802	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	13V	PR D88 112001	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	12N	PR D86 092009	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	10B	PRL 104 132002	M. Ablikim *et al.*	(BESIII Collab.)
ADAMS	09	PR D80 051106	G.S. Adams *et al.*	(CLEO Collab.)
DOBBS	08A	PRL 101 182003	S. Dobbs *et al.*	(CLEO Collab.)
ANDREOTTI	05B	PR D72 032001	M. Andreotti *et al.*	(FNAL E835 Collab.)
ROSNER	05	PRL 95 102003	J.L. Rosner *et al.*	(CLEO Collab.)
AULCHENKO	03	PL B573 63	V.M. Aulchenko *et al.*	(KEDR Collab.)
ANTONIAZZI	94	PR D50 4258	L. Antoniazzi *et al.*	(E705 Collab.)
ARMSTRONG	93B	PR D47 772	T.A. Armstrong *et al.*	(FNAL E760 Collab.)
ARMSTRONG	92D	PRL 69 2337	T.A. Armstrong *et al.*	(FNAL, FERR, GENO+)
BAGLIN	86	PL B171 135	C. Baglin *et al.*	(LAPP, CERN, TORI, STRB+)