

$a_0(1950)$

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

OMITTED FROM SUMMARY TABLE

Needs confirmation. Seen in $\gamma\gamma \rightarrow \eta_c(1S) \rightarrow K\bar{K}\pi$ by LEES 16A with significance 2.5σ in $K_S^0 K^\pm \pi^\mp$ and 4.2σ in $K^+ K^- \pi^0$.

 $a_0(1950)$ MASS

| VALUE (MeV) | EVTS | DOCUMENT ID | TECN | COMMENT |
|--|------|---------------------|----------|---|
| $1931 \pm 14 \pm 22$ | 12k | ^{1,2} LEES | 16A BABR | $\gamma\gamma \rightarrow \eta_c(1S) \rightarrow K\bar{K}\pi$ |
| $1949 \pm 32 \pm 76$ | 8k | ¹ LEES | 16A BABR | $\gamma\gamma \rightarrow \eta_c(1S) \rightarrow K_S^0 K^\pm \pi^\mp$ |
| $1927 \pm 15 \pm 23$ | 4k | ¹ LEES | 16A BABR | $\gamma\gamma \rightarrow \eta_c(1S) \rightarrow K^+ K^- \pi^0$ |

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

¹ From a model-independent partial wave analysis fit to a relativistic Breit-Wigner function with a floating width.

² Weighted average of the $K_S^0 K^\pm$ and $K^+ K^-$ decay modes.

 $a_0(1950)$ WIDTH

| VALUE (MeV) | EVTS | DOCUMENT ID | TECN | COMMENT |
|---------------------------------------|------|---------------------|----------|---|
| $271 \pm 22 \pm 29$ | 12k | ^{1,2} LEES | 16A BABR | $\gamma\gamma \rightarrow \eta_c(1S) \rightarrow K\bar{K}\pi$ |
| $265 \pm 36 \pm 110$ | 8k | ¹ LEES | 16A BABR | $\gamma\gamma \rightarrow \eta_c(1S) \rightarrow K_S^0 K^\pm \pi^\mp$ |
| $274 \pm 28 \pm 30$ | 4k | ¹ LEES | 16A BABR | $\gamma\gamma \rightarrow \eta_c(1S) \rightarrow K^+ K^- \pi^0$ |

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

¹ From a model-independent partial wave analysis fit to a relativistic Breit-Wigner function with a floating mass.

² Weighted average of the $K_S^0 K^\pm$ and $K^+ K^-$ decay modes.

 $a_0(1950)$ DECAY MODES

| Mode | Fraction (Γ_i/Γ) |
|---------------------------|--------------------------------|
| $\Gamma_1 \quad K\bar{K}$ | seen |

 $a_0(1950)$ BRANCHING RATIOS

| $\Gamma(K\bar{K})/\Gamma_{\text{total}}$ | Γ_1/Γ | | | |
|--|-------------------|-------------------|----------|---|
| VALUE | EVTS | DOCUMENT ID | TECN | COMMENT |
| seen | 12k | ¹ LEES | 16A BABR | $\gamma\gamma \rightarrow \eta_c(1S) \rightarrow K\bar{K}\pi$ |

¹ From a model-independent partial wave analysis.

 $a_0(1950)$ REFERENCES

| | | | | |
|------|-----|---------------|-------------------------|-----------------|
| LEES | 16A | PR D93 012005 | J.P. Lees <i>et al.</i> | (BABAR Collab.) |
|------|-----|---------------|-------------------------|-----------------|