

# CHARMED MESONS ( $C = \pm 1$ )

$$D^+ = c\bar{d}, D^0 = c\bar{u}, \bar{D}^0 = \bar{c}u, D^- = \bar{c}d, \text{ similarly for } D^{*'}\text{'s}$$

**$D^\pm$**

$$I(J^P) = \frac{1}{2}(0^-)$$

$$\text{Mass } m = 1869.3 \pm 0.5 \text{ MeV} \quad (S = 1.1)$$

$$\text{Mean life } \tau = (1.051 \pm 0.013) \times 10^{-12} \text{ s}$$

$$c\tau = 315 \mu\text{m}$$

### c-quark decays

$$\Gamma(c \rightarrow \ell^+ \text{ anything}) / \Gamma(c \rightarrow \text{ anything}) = 0.095 \pm 0.009 \text{ [mm]}$$

### CP-violation decay-rate asymmetries

$$A_{CP}(K^+ K^- \pi^\pm) = -0.017 \pm 0.027$$

$$A_{CP}(K^\pm K^{*0}) = -0.02 \pm 0.05$$

$$A_{CP}(\phi \pi^\pm) = -0.014 \pm 0.033$$

$$A_{CP}(\pi^+ \pi^- \pi^\pm) = -0.02 \pm 0.04$$

### $D^+ \rightarrow \bar{K}^*(892)^0 \ell^+ \nu_\ell$ form factors

$$r_V = 1.82 \pm 0.09$$

$$r_2 = 0.78 \pm 0.07$$

$$r_3 = 0.0 \pm 0.4$$

$$\Gamma_L / \Gamma_T = 1.14 \pm 0.08$$

$$\Gamma_+ / \Gamma_- = 0.21 \pm 0.04 \quad (S = 1.3)$$

$D^-$  modes are charge conjugates of the modes below.

$D^+$ DECAY MODES	Fraction ( $\Gamma_i / \Gamma$ )	Scale factor/ Confidence level	$p$ (MeV/c)
<b>Inclusive modes</b>			
$e^+$ anything	(17.2 $\pm$ 1.9 ) %		—
$K^-$ anything	(24.2 $\pm$ 2.8 ) %	S=1.4	—
$\bar{K}^0$ anything + $K^0$ anything	(59 $\pm$ 7 ) %		—
$K^+$ anything	( 5.8 $\pm$ 1.4 ) %		—
$\eta$ anything	[nn] < 13 %	CL=90%	—