Table 2: Comparison of Wrong-sign Sensitivities

Experiment (fb^{-1}, $p_{D^*} >$ GeV)	Mode	# RS 10^3 d:m	$\sigma_{\delta M}$ KeV	B_{WS} MeV^{-1}	S/B ev. d:m	r - Sta. Err. 10^{-3} calc/act
C-II (1.8,3.1)	$K\pi$	2.2	770	5.3	17/16	1.8/2.5
C-II (2.5,2.9)	$K\pi\pi^0$	4.2	640	25	14/63	1.9/2.7
E791	$K\pi$	5.2:13.5	760	38	36/100:28/100	1.9/3.4:0.7/1.2
E791	$K3\pi$	3.5:9.7	760	16	9/43:20/43	1.9/3.5:0.7/1.2
C/SVX (3.8,3.1)	$K\pi$	2.8	250	6.7	22/7	0.9
C/SVX (3.8,2.9)	$K\pi\pi^0$	5.3	250	32	18/32	1.1
C/SVX (3.8,2.0)	$K\pi$	7.3	250	70	57/70	1.1
C/SVX (3.8,2.0)	$K\pi\pi^0$	10	250	240	34/240	1.5

The acceptance limitations in fixed target experiments are the result of their cuts to suppress background near $t = 0$. The cuts are less restrictive for E691 because their beam consists of photons, while the E791 beam consists of pions.

The fixed target acceptance limitations render them relatively *less* sensitive to direct $D^0 \to K^+\pi^-$ decays, which have a t^0 weighting in time, and relatively *more* sensitive to mixing in absence of interference, which has a t^2 weighting in time.

None of the three experiments, CLEO-II, E691, or E791, had a background-free situation. CLEO-II, in the result of Equation 1, was able to pull a signal out from from the background, *without* information on the $c\tau$ of the decay; E691 and E791 were unable to do so, even though they had $c\tau$ information. Qualitatively, this is because the e^+e^- environment has less background than the fixed-target environment.

Measurement of the $c\tau$ with the SVX should enable us to combine the low background advantage of CLEO-II with the advantages of the fixed target experiments, to achieve improved sensitivity to all types of wrong-sign D decay.

A simple study of the improvement possible *prior* to use of the $c\tau$ information from the SVX is summarized in Table 2. The improvements brought by the SVX in the resolution in δM, the $D^* - D$ mass difference, are included there. In senstivity to direct wrong sign decays, the SVX brings a factor of 2-3 in sensitivity, *prior* to $c\tau$ measurement. Exploitation of $c\tau$ may well bring another factor of 2.

The details that go into Table 2 follow. For the CLEO cases, the integrated luminosity is included in the first column; the CLEO/SVX numbers correspond to the data that we are likely to have processed by the end of 1997. For CLEO, the momentum cut on the D^* is stated as well; we are investigating lowering this cut, and the second set of C/SVX numbers reflect this change: we assume that the cost is an increase of a factor of 4 in background. The '# RS' column, for fixed target experiments, is *different*, depending upon whether a limit is being set on wrong sign final states from direct decay, or from mixing. Because of the difference between t^0 and the t^2 dependence of direct decay and mixing, respectively, the lifetime cut made by the fixed target experiments changes the relative acceptance for those processes, and we reflect this acceptance change in their effective number of right sign decays. The background under