Title: An Interference Study of the $\chi_{c0}(1^3P_0)$ State of Charmonium in the Reaction $\bar{p}p \to \pi^0\pi^0$

Abstract: Fermilab experiment E835 has studied Charmonium produced in $p\bar{p}$ annihilation using a gas jet hydrogen target, the virtually mono-noenergetic stochastically cooled antiproton beam and a large acceptance electromagnetic calorimeter. During the last data taking, the state χ_{c0} has been observed in the final state $\pi^0\pi^0$ (and $\eta\eta$). Although the resonant amplitude is an order of magnitude smaller than that of the non-resonant continuum production of $\pi^0\pi^0$, an enhanced interference signal is evident. A partial wave expansion is used to extract physics parameters.
A brief report on the E835 study of the charmonium state $h_c(1^1P_1)$ will also be given.