

Steen Kohn
Tom Woreen
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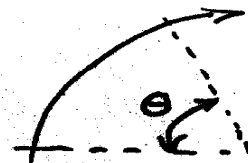
Gentle Bend Dynamics

- The vertical drift angle in a bent solenoid is

$$\phi = \frac{V_{\perp}}{V_{\parallel}} = B_s / B_{\parallel} R - B_s / B_{\parallel}$$

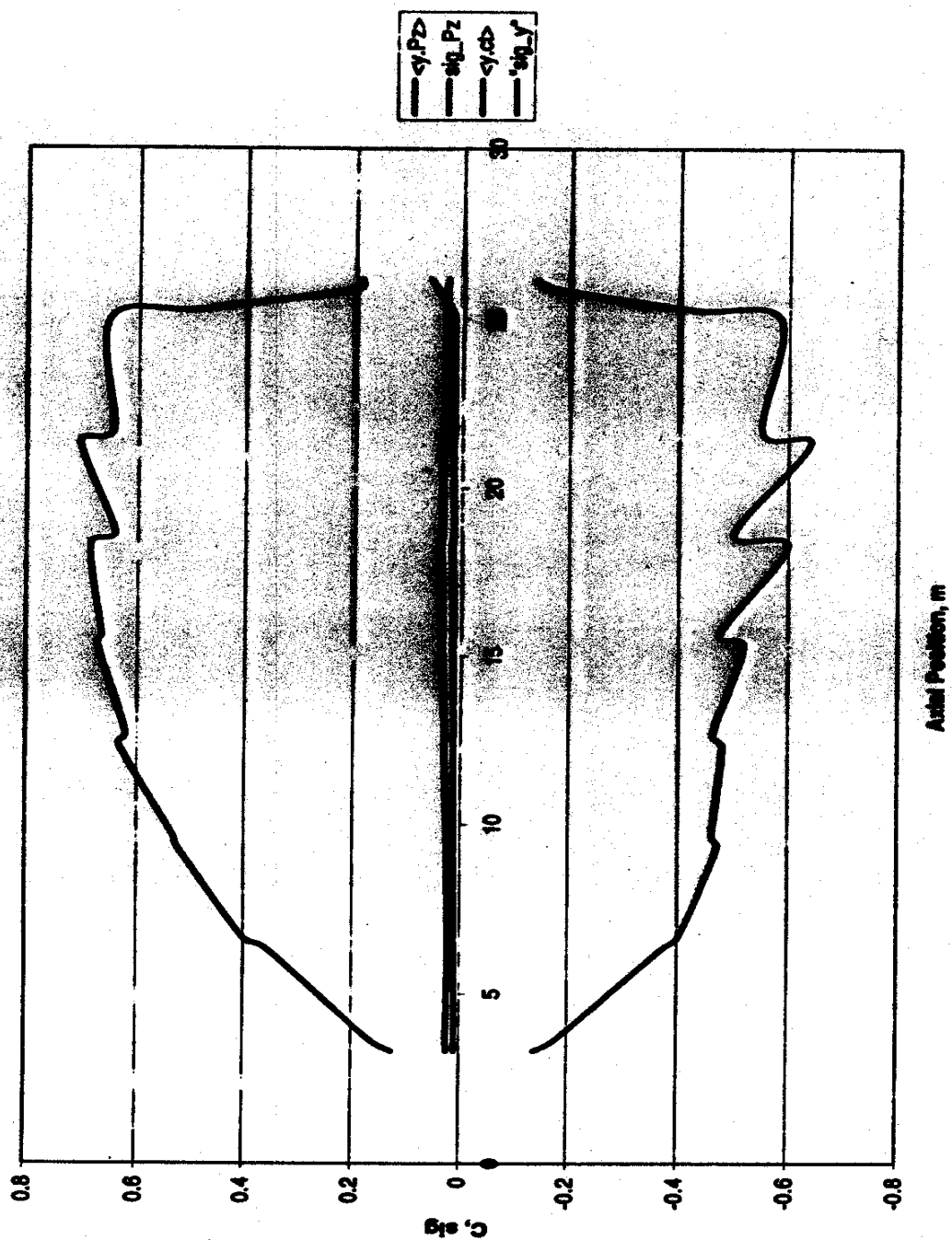
giving a dispersion

$$D = \int (B_s / B_{\parallel} R) ds \sim \Theta B_s / B_{\parallel}$$

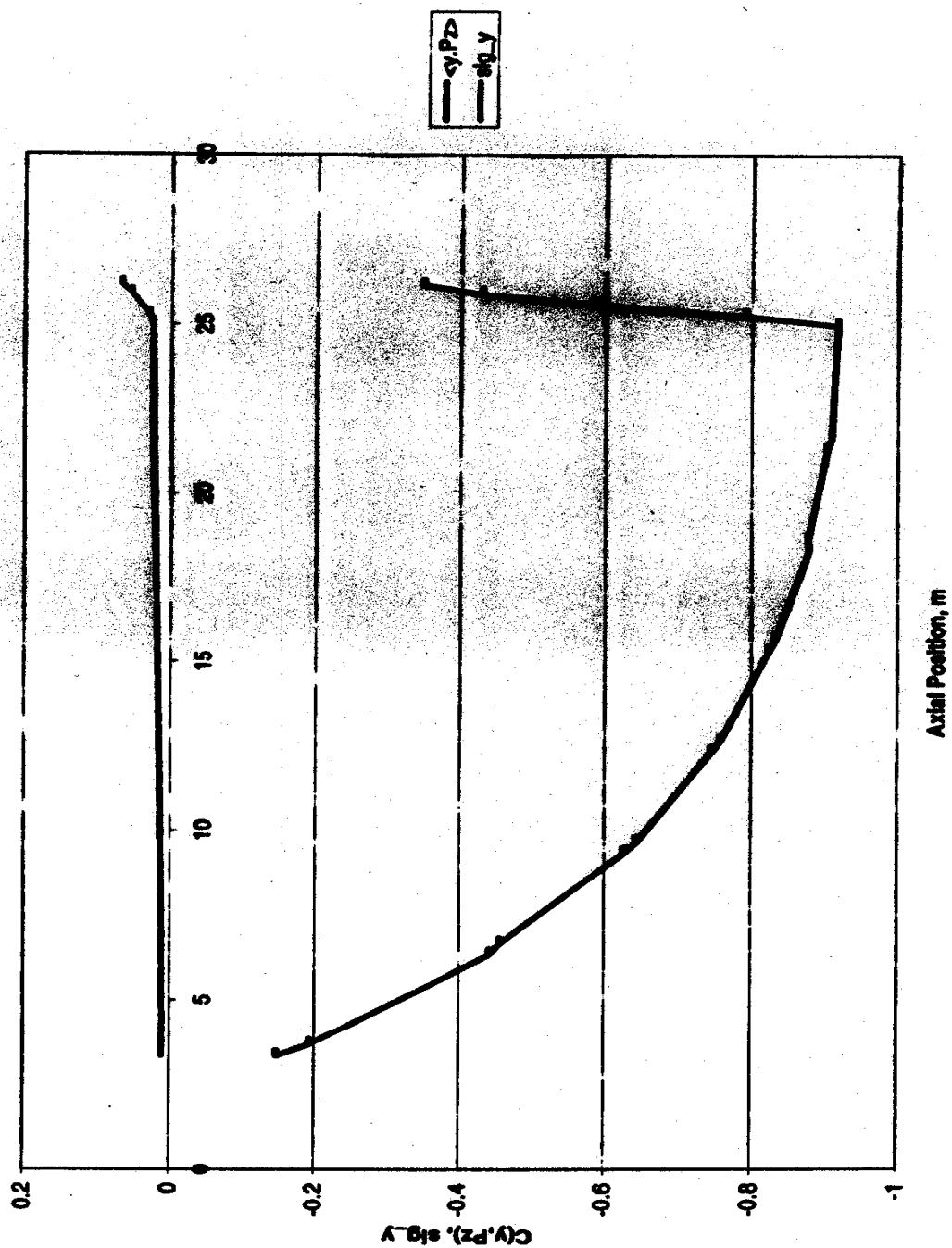


- Aberrations seem to be proportional to $1/R$
- If Θ and R are both large we can have (?)
 - Good dispersion with low emittance growth
 - Space for it inside the bent solenoid
- If rf and absorbers are in the bent solenoid
 - Synchrotron motion will mix up correlations over distances greater than $\lambda_s / 4$.
 - For most applications λ_s is $\sim 30+ \text{m}$ so dispersions can be generated over $L \sim 10 \text{m}$
- It may be useful to have linac / Absorber periods of $\sim \lambda / 4$ so that every absorber is a wedge.
- Wedges should still be $\lambda_p / 2$ apart.
- All parameters seem compatible with "Single Flip" geometry.

Correlations

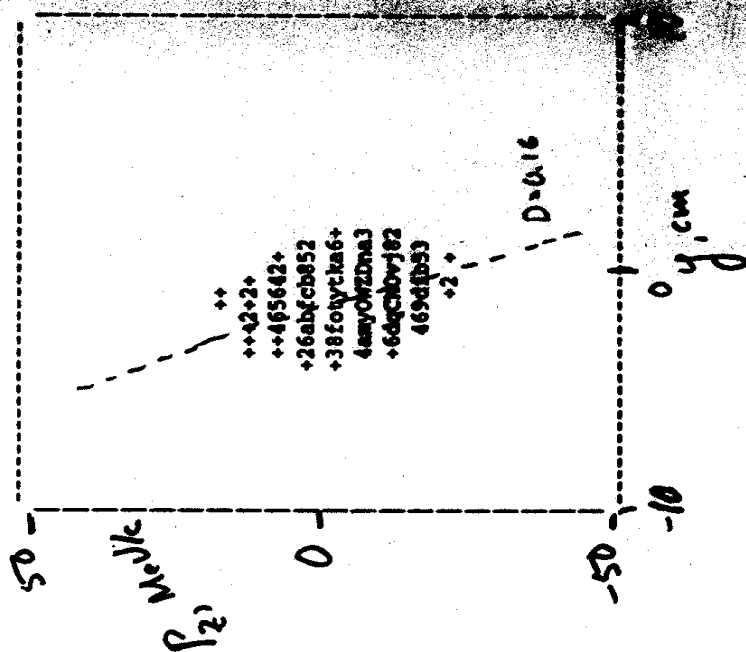


No RF, No Absorber in Bend



| IC00L

2.08



$$R_{\text{load}} = 16 \text{ m}$$

$$D = \theta \frac{\beta \beta}{\beta} \sim 1.2 \frac{0.67 T_m}{5 T} \sim 0.16 \text{ m}$$

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plot      = 11
var(x)    = y
dest(x)    = 62
var(y)     = pz
dest(y)    = 62

lo x      = -0.100E+00
hi x      = 0.100E+00
step x    = 0.500E+02
lo y      = -0.500E+01
hi y      = 0.500E+01
step y    = 0.500E+02

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Possible Parameters:

