$$A = \frac{N_+ - N_-}{N_+ + N_-}$$

Key remark 2: $N_+ = N_+^D + N_+^P + N_+^U$

$N_- = N_-^D + N_-^P + N_-^U$

Detectors asymmetry:

$$A = \frac{N_+^D + N_+^P + N_+^U - N_-^D - N_-^P - N_-^U}{N_+^D + N_+^P + N_+^U + N_-^D + N_-^P + N_-^U} =$$

$$= \frac{(N_+^D - N_-^D) + (N_+^P - N_-^P) + \overbrace{(N_+^U - N_-^U)}^{\approx 0}}{(N_+^D + N_-^D) + (N_+^P + N_-^P) + 2N^U}$$

Unless different detection and charge!

$N_+^U = N_-^U = N^U$

Protons asymmetry: $A_p = \frac{N_+^P - N_-^P}{N_+^P + N_-^P} \Rightarrow$

$$A_p \cdot \underbrace{(N_+^P + N_-^P)}_{N^P} = N_+^P - N_-^P$$

$$A^D = \frac{(N_+^D - N_-^D) + A_p \cdot N^P}{N_+^D + N_-^D + N^P + 2N^U} =$$

$$= \frac{(N_+^D - N_-^D)}{(N_+^D + N_-^D) + N^P + 2N^U} + \frac{A_p N^P}{N_+^D + N_-^D + N^P + 2N^U}$$

$$N^D = N_+^D + N_-^D$$
$$N^P = N_+^P + N_-^P$$
$$2N^U = N_+^U + N_-^U$$

Takole zapišemo!

$$N^P = \sigma \cdot N^D$$
$$N^U = \omega \cdot N^D$$

Predpostavimo, da je $N^P, N^U \ll N_D$:

$$A_D = \frac{N_+^D - N_-^D}{N_+^D + N_-^D + N_D\cdot(\sigma + 2\omega)} + \frac{A_p \cdot \sigma N^D}{N^D + \sigma N^D + 2\omega N^D}$$

$$= \frac{(N_+^D - N_-^D)}{(N_+^D + N_-^D)\cdot(1+\sigma+2\omega)} + A_p \cdot \frac{\sigma}{1+\sigma+2\omega}$$

$$\approx \frac{N_+^D - N_-^D}{N_+^D + N_-^D}\underbrace{(1-\sigma-2\omega)} + A_p \cdot \frac{\sigma}{1+\sigma+2\omega}$$

Tukaj pride približek v igro!

To je spet ena vrsta dilucije!

↓

Več kot je protonov, manjša je asimetrija!

<u>Ocena:</u> $A_p \leq 0.01$, $\sigma = \omega \leq 0.1$

Ta rezultat bo gotovo šokiral [?]!

① $A_p \cdot \frac{\sigma}{1+\sigma+2\omega} \leq 0.01 \, \frac{0.1}{1+0.1+0.2} = 8\cdot 10^{-4} \sim 1\cdot 10^{-3}$

Ta skoraj gotovo lahko zanemarimo [?]!!!

② $(1-\sigma-2\omega) = 0.7$ ← Ta člen zmanjša asimetrijo za ≤ 30%. To je precej! Bolje oceni člena σ in ω.

Tukaj pa je treba biti previden!

②