Coherent Dedisperse

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1 General method to process Coherent Dedisperse

Coherent dedisperse bring good time resolution for system than incoherent dedisperse. In mathmaticly, it's like:

$$\hat{A}_m = \sum_n \hat{A}_n e^{-i(d\cos\theta)\cdot n} \tag{1}$$

$$= \sum_n A_n e^{\frac{-i2\pi}{N}} \tag{2}$$

$$dcos\theta = \frac{2\pi m}{N} \tag{3}$$

$$N_\Sigma = \frac{1}{27.5}\left(\frac{G_\Sigma}{G_{GBT}}\frac{< T^{syts}_{GBT} >}{< T^{sys}_\Sigma >}\sqrt{\frac{B_\Sigma}{B_{GBT}}}\right)^\gamma \left(\frac{\Omega_\Sigma}{\Omega_{GBT}}\right) day^{-1}$$

$$\Delta t = 4.15 \times 10^{-6} ms \cdot DM \times (f_{ref}^{-2} - f_{chan}^{-2}) \tag{4}$$