

Cold Electronics Response at 1us peaking



Magnitude of Fourier transform of response



Phase of Fourier transform of response



Cold Electronics Response at 2us peaking



Magnitude of Fourier transform of response



Phase of Fourier transform of response



RC Response at 1ms time constant



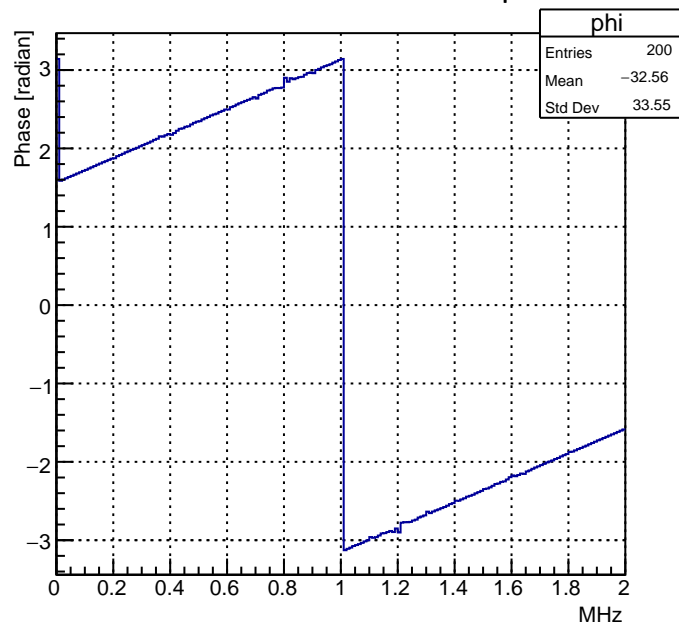
RC Response at 1ms time constant (suppress delta)



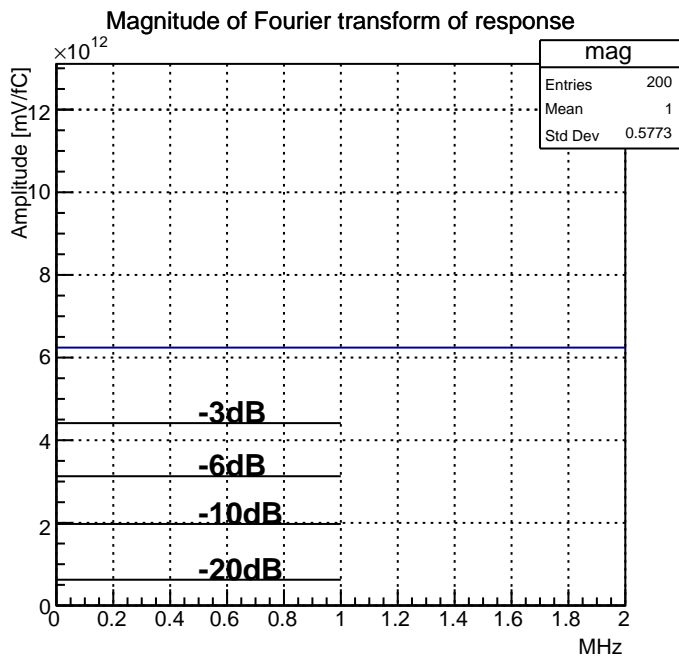
Magnitude of Fourier transform of response



Phase of Fourier transform of response



# Response Gaussian smear by default



Response Gaussian 2 us smear



Magnitude of Fourier transform of response



Phase of Fourier transform of response

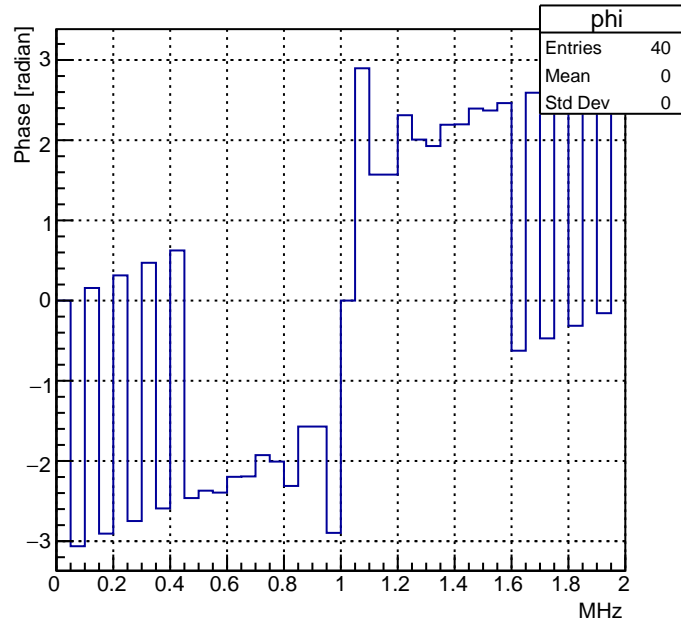


Figure 10: FFWT-DFT timing (absolute). The graph shows the absolute timing in nanoseconds (ns) on the y-axis (scaled by  $10^3$ ) versus the number of samples on the x-axis (logarithmic scale). The timing increases significantly as the number of samples increases, particularly for values above  $10^3$ .

Number of Samples	Time (ns) $\times 10^3$
128	128
256	256
512	400
1024	800
2048	2048
4096	3456
8192	6000
16384	16384

The graph illustrates the time per sample (ns/sample) as a function of the number of samples (logarithmic scale) for three different methods. The x-axis ranges from  $10^3$  to  $10^4$  samples, and the y-axis ranges from 50 to 250 ns/sample. The solid line represents the highest time per sample, followed by the dashed line, and the dotted line represents the lowest time per sample. All methods show a general decrease in time per sample as the number of samples increases, with some fluctuations.

Number of samples	Solid line (ns/sample)	Dashed line (ns/sample)	Dotted line (ns/sample)
$10^3$	~200	~150	~100
$2 \times 10^3$	~100	~75	~75
$3 \times 10^3$	~110	~90	~75
$4 \times 10^3$	~75	~75	~65
$5 \times 10^3$	~75	~75	~65
$6 \times 10^3$	~75	~75	~65
$7 \times 10^3$	~75	~75	~65
$8 \times 10^3$	~75	~75	~65
$9 \times 10^3$	~75	~75	~65
$10^4$	~110	~110	~65