

# Study Status

Nguyen Thi Kim Ha  
Ho Chi Minh University of Science

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- 1 Draw Normal and Inverted hierarchies with uncertainties scale

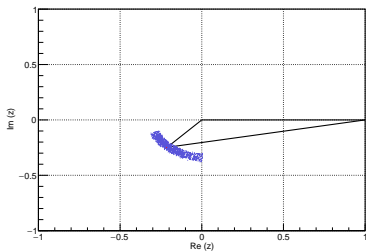
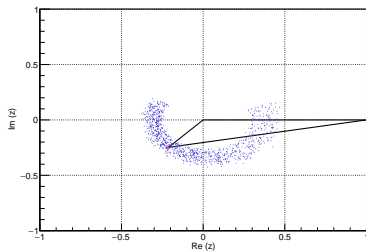
According to [www.nu-fit.org](http://www.nu-fit.org), three-neutrino fit based on data available in January 2018  
Normal Ordering

	best fit $\pm 1\sigma$	$3\sigma$ range
$\sin^2 \theta_{12}$	$0.307^{+0.013}_{-0.012}$	$0.272 \rightarrow 0.346$
$\sin^2 \theta_{23}$	$0.538^{+0.038}_{-0.069}$	$0.418 \rightarrow 0.613$
$\sin^2 \theta_{13}$	$0.02206^{+0.00075}_{-0.00075}$	$0.01981 \rightarrow 0.02436$
$\delta_{CP}/^\circ$	$234^{+43}_{-31}$	$144 \rightarrow 374$

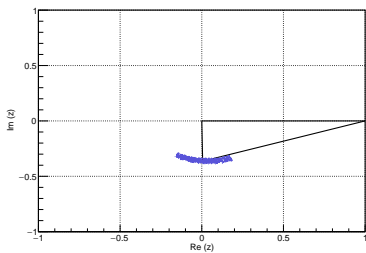
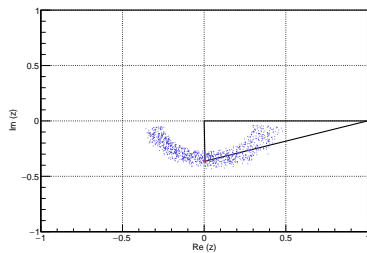
## Invert Ordering

	best fit $\pm 1\sigma$	$3\sigma$ range
$\sin^2 \theta_{12}$	$0.307^{+0.013}_{-0.012}$	$0.272 \rightarrow 0.346$
$\sin^2 \theta_{23}$	$0.554^{+0.023}_{-0.033}$	$0.435 \rightarrow 0.616$
$\sin^2 \theta_{13}$	$0.02227^{+0.00074}_{-0.00074}$	$0.02006 \rightarrow 0.02452$
$\delta_{CP}/^\circ$	$278^{+26}_{-29}$	$192 \rightarrow 354$

NO

(a)  $1\sigma$ (b)  $3\sigma$

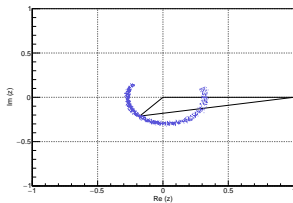
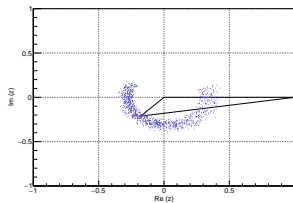
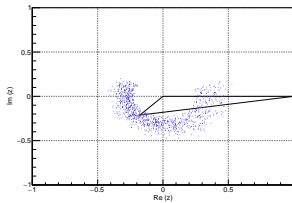
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(c)  $1\sigma$ (d)  $3\sigma$

According to another table of data

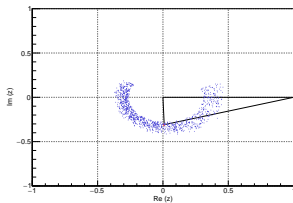
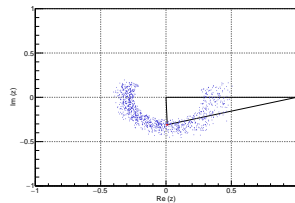
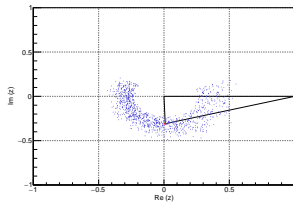
Parameter	Best fit	$1\sigma$ range	$2\sigma$ range	$3\sigma$ range
$\Delta m_{21}^2/10^{-5} \text{ eV}^2$ (NO or IO)	7.54	7.32 – 7.80	7.15 – 8.00	6.99 – 8.18
$\sin^2 \theta_{12}/10^{-1}$ (NO or IO)	3.08	2.91 – 3.25	2.75 – 3.42	2.59 – 3.59
$\Delta m_{31}^2/10^{-3} \text{ eV}^2$ (NO)	2.47	2.41 – 2.53	2.34 – 2.59	2.27 – 2.65
$ \Delta m_{32}^2 /10^{-3} \text{ eV}^2$ (IO)	2.42	2.36 – 2.48	2.29 – 2.55	2.23 – 2.61
$\sin^2 \theta_{13}/10^{-2}$ (NO)	2.34	2.15 – 2.54	1.95 – 2.74	1.76 – 2.95
$\sin^2 \theta_{13}/10^{-2}$ (IO)	2.40	2.18 – 2.59	1.98 – 2.79	1.78 – 2.98
$\sin^2 \theta_{23}/10^{-1}$ (NO)	4.37	4.14 – 4.70	3.93 – 5.52	3.74 – 6.26
$\sin^2 \theta_{23}/10^{-1}$ (IO)	4.55	4.24 – 5.94	4.00 – 6.20	3.80 – 6.41

NO

(e)  $1\sigma$ (f)  $2\sigma$ (g)  $3\sigma$



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(h)  $1\sigma$ (i)  $2\sigma$ (j)  $3\sigma$