

IBD simulation from Fifteen

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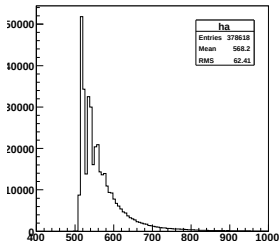
Dayabay Collaboration



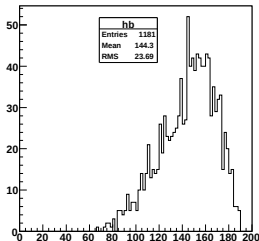
- Have installed NuWa trunk and 1.2.0-rc02 to the Feynman clusters.
- Tested with batch jobs. (this talk)
- Performance: 400 IBD events full simulation (use Fifteen package) take about 8 hours.
- Requesting a new account to install SPADE for automatic data transfer.
- Ready for MDC09 soon.

IBD events in gds at Daya Bay site

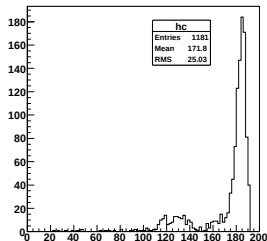
ADC hits



Prompt Signal number of PMT Hitted

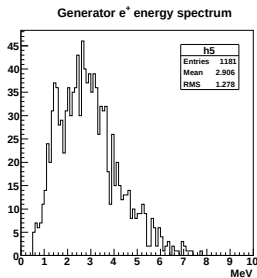
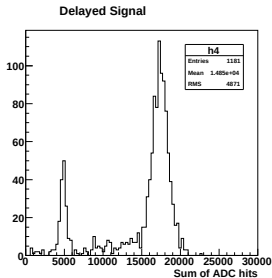
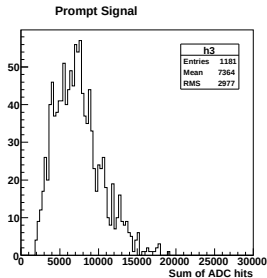
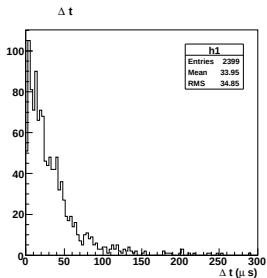


Delayed Signal number of PMT hitted



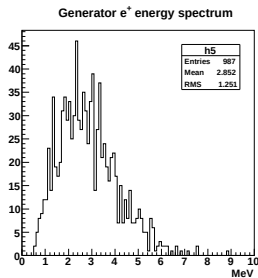
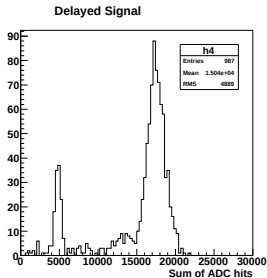
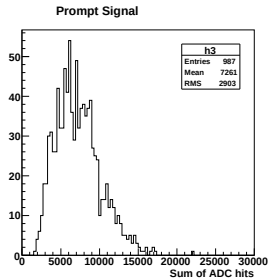
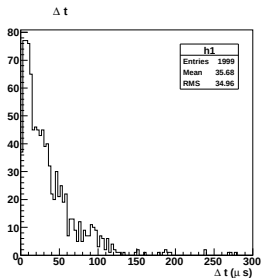
- Pure IBD events, different rates at different sites
- Generated uniformly inside the volume
- Volume including daughter volumes

IBD events in gds at Daya Bay site



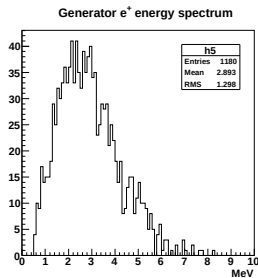
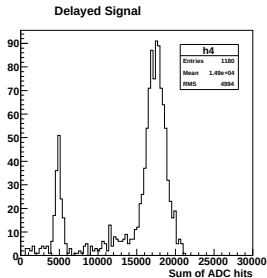
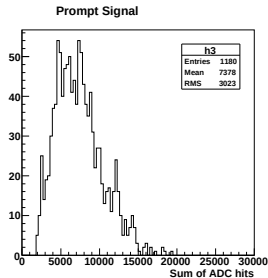
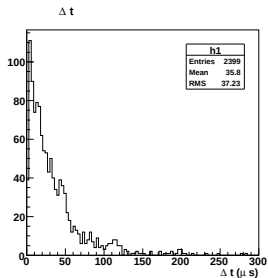
- Assume ADC pedestal = 500

IBD events in gds at far site



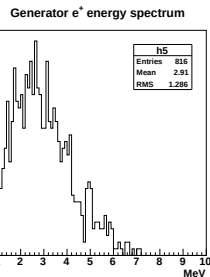
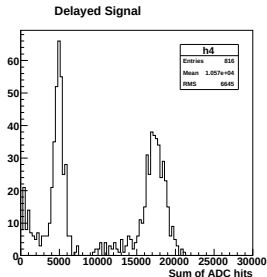
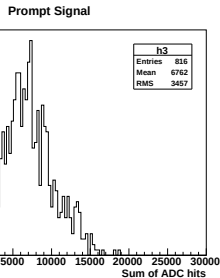
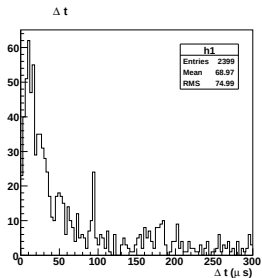
- Assume ADC pedestal = 500

IBD events in gds at Ling Ao site



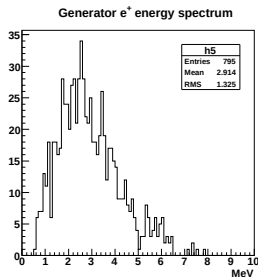
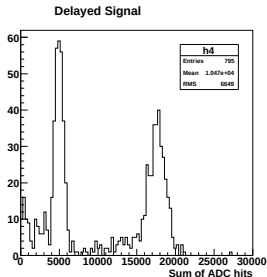
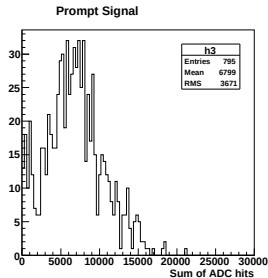
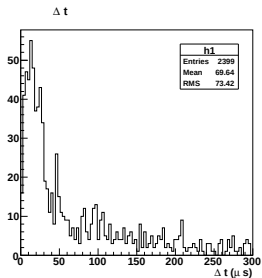
- Assume ADC pedestal = 500

IBD events in oil(including daughters) at Daya Bay site



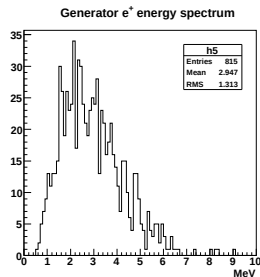
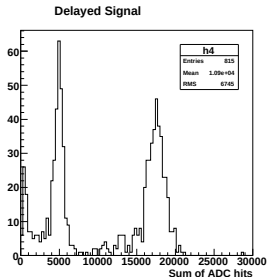
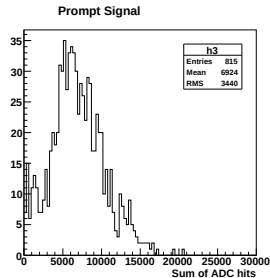
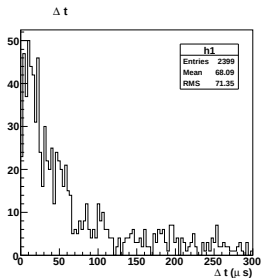
- Assume ADC pedestal = 500

IBD events in oil(including daughters) at far site



- Assume ADC pedestal = 500

IBD events in oil(including daughters) at Ling Ao site



- Assume ADC pedestal = 500

Site	Volume	Readouts	Generated	Candidate/truth	Eff.
DayaBay	gds	2400	1202 ± 1	1181/1181	$98.3 \pm 2.9\%$
Far	gds	2000	1004 ± 2	987/987	$98.3 \pm 3.1\%$
LingAo	gds	2400	1202 ± 1	1180/1180	$98.2 \pm 2.9\%$
DayaBay	oil	2400	1972 ± 3	816/816	$41.4 \pm 1.4\%$
Far	oil	2400	2016 ± 3	795/795	$39.4 \pm 1.4\%$
LingAo	oil	2400	2007 ± 3	815/815	$40.6 \pm 1.4\%$

- Generated: generator exec number. Jobs are splitted, sometimes the last readout is the prompt signal of IBD event, delayed signal is truncated.
- IBD Candidate requirement: $\Delta t < 200\mu s$, no energy requirement yet.
- Truth: make sure the candidate is true IBD event, i.e. prompt and delayed signals are from the same generated event.

- Add in Radioactivity generators
- Add in Muon generator
- Estimate the fake rate at different sites