

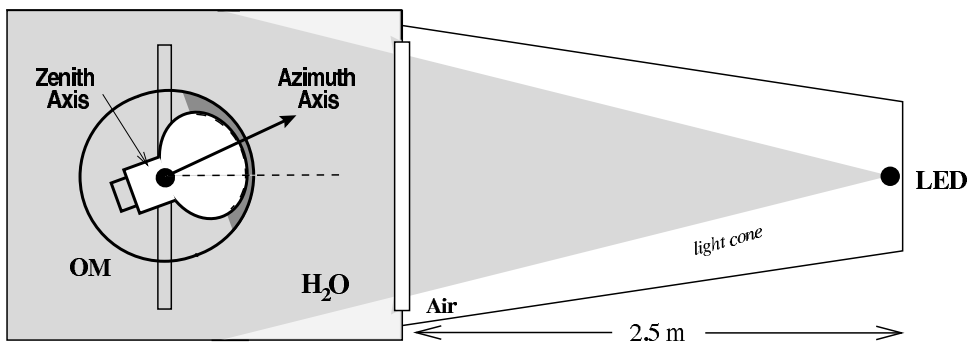
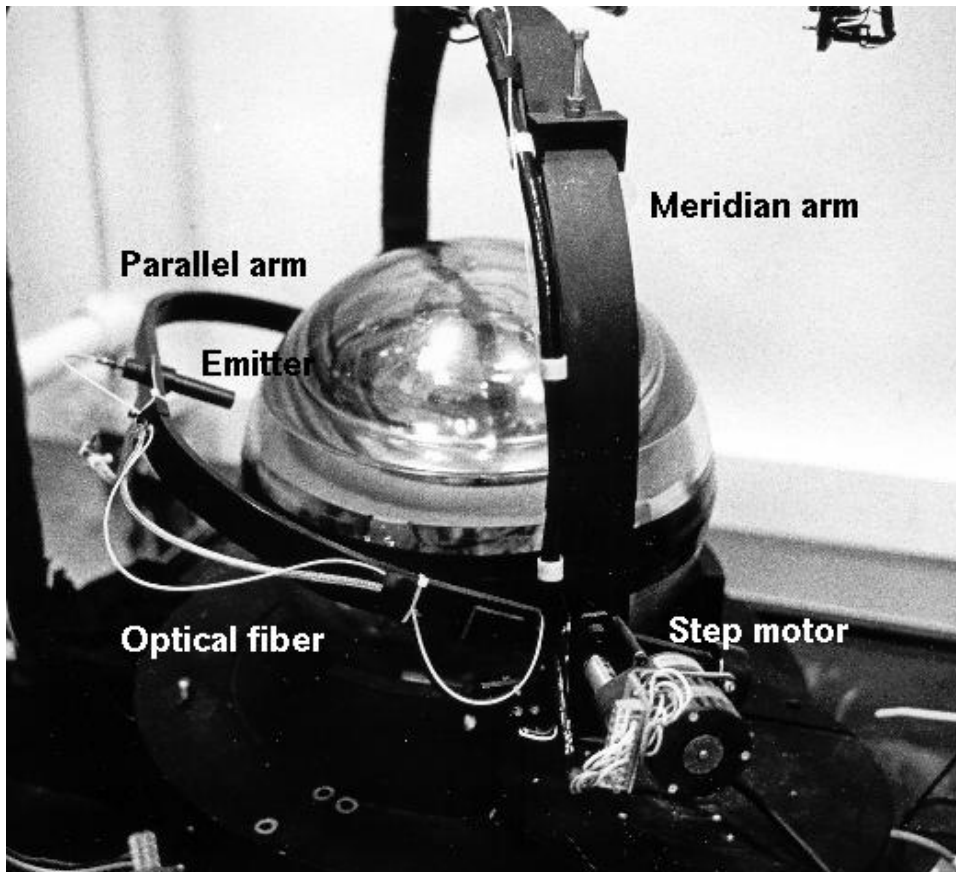
Status of Angular sensitivity measurements

Peter Nießen

Stockholm AMANDA Meeting, June 21st - June 25th, 2002

Peter Nießen

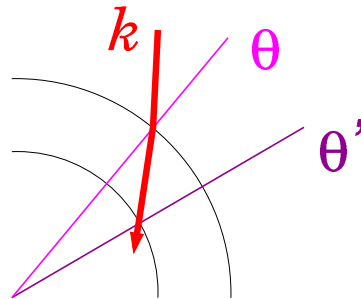
Turning point illumination sensitivity to plane wave sensitivity



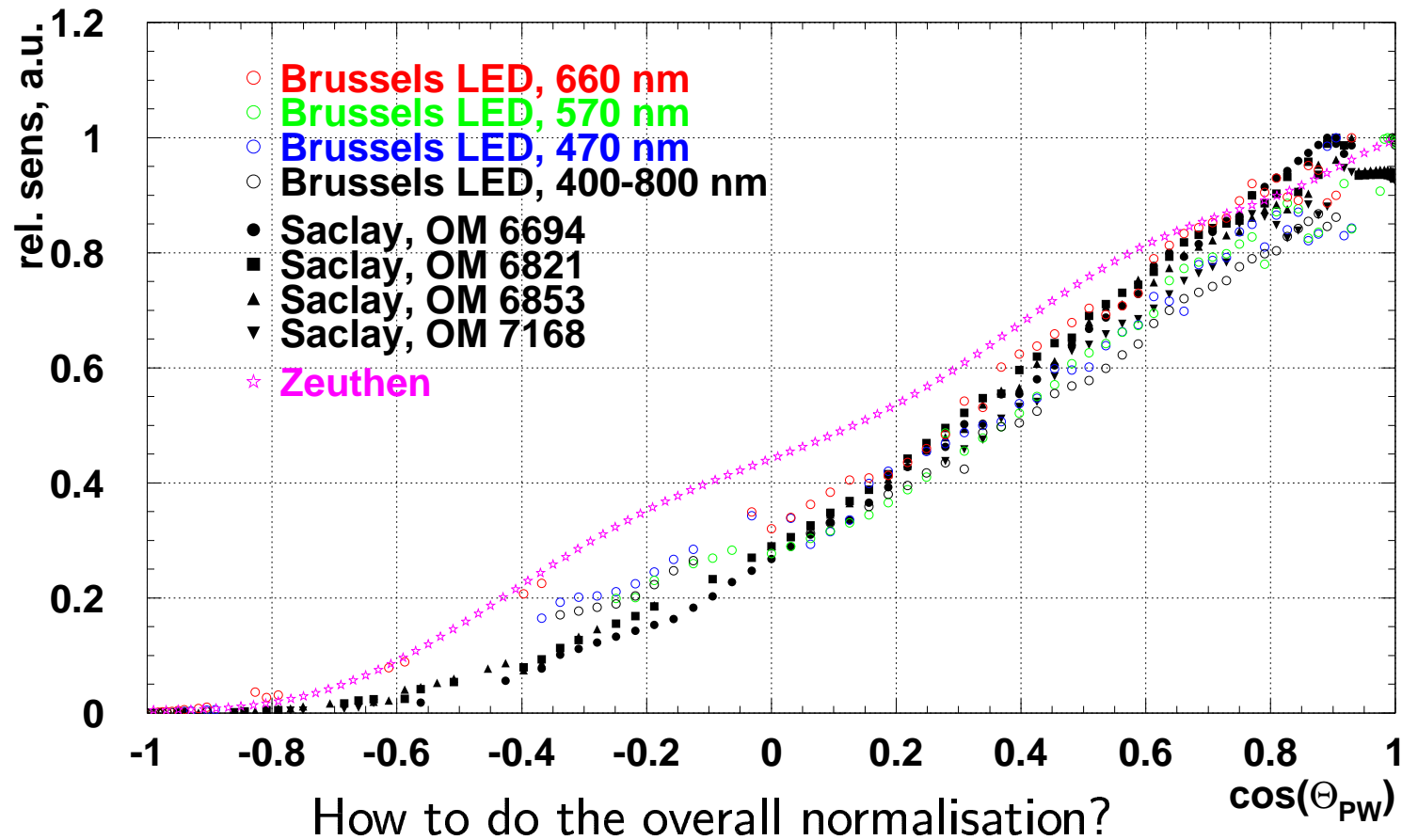
The procedure

$$S(\vec{k}) = \int_{d\vec{A}\vec{k} > 0} d\vec{A}(\theta, \phi) \vec{k} \langle s(\theta') \rangle$$

- \vec{k} : Direction of incident plane wave
- θ, ϕ : Polar coordinates of the OM surface
- $d\vec{A}(\theta, \phi)$: Normalised oriented surface element of the OM
- $\langle s(\theta) \rangle$: ϕ -averaged point illumination sensitivity, normalised to peak sensitivity
- $S(\vec{k})$: Plane wave sensitivity (normalised to 1 at $\vec{k} = (0, 0, 1)$, i.e. head-on)
- $\theta \rightarrow \theta'$: Refraction at the water/glass boundary



Comparison with old measurement



Simulation results with averaged measurements

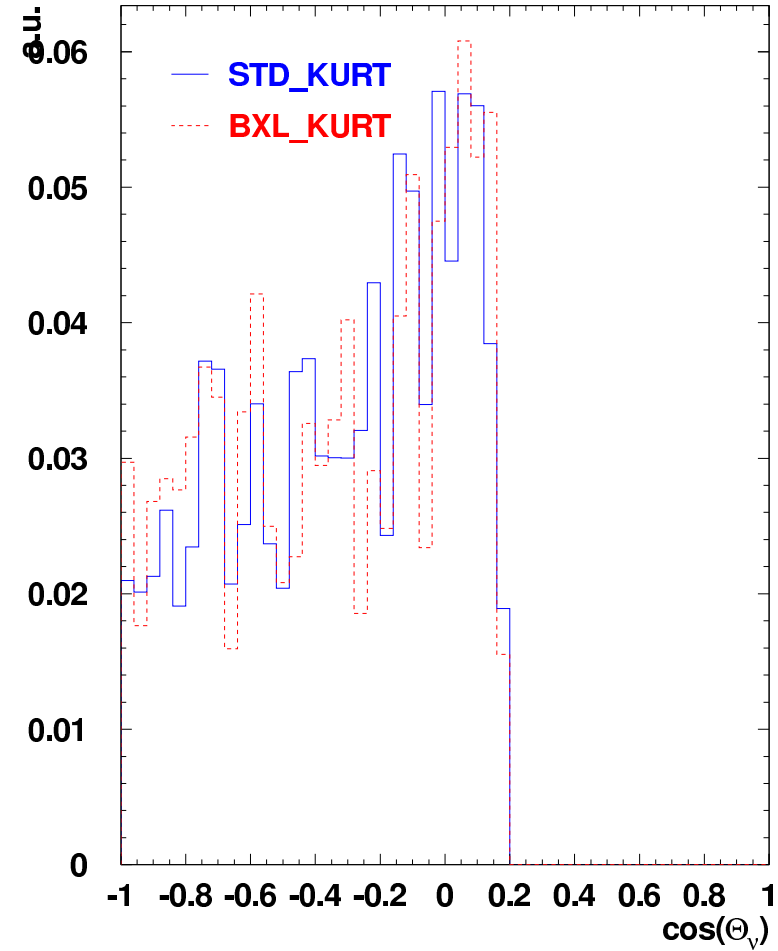
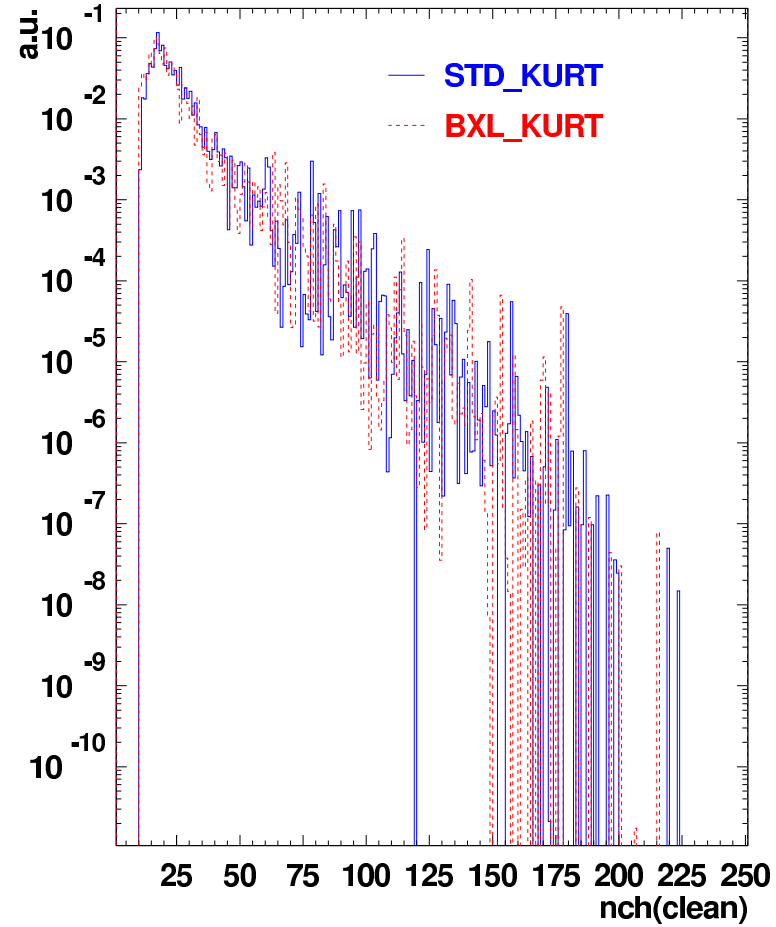
Generation of PTD tables with

- STD_KURT ice model
- Hole model 2 ($\lambda_{\text{eff}} = 50$ cm)

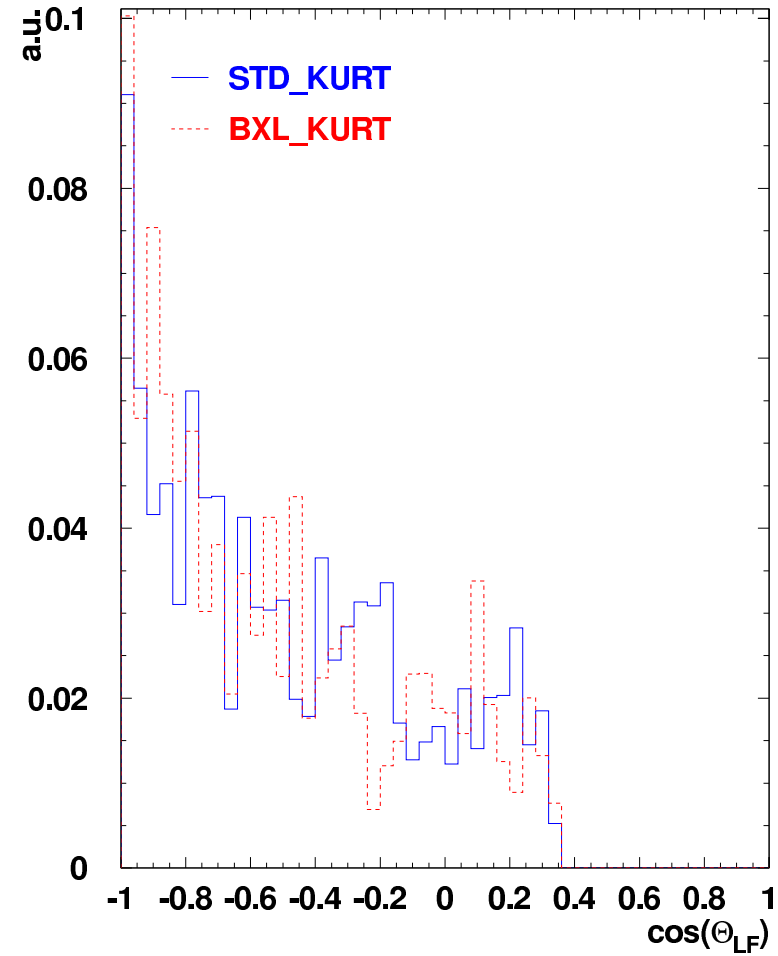
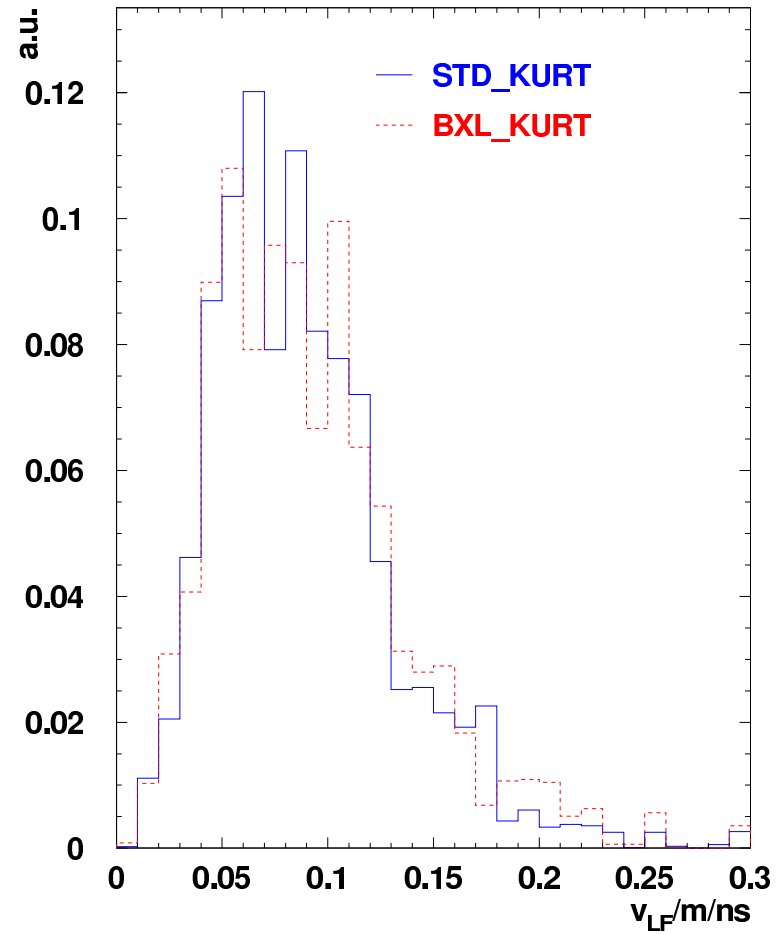
Model	ν_{μ}/Hz	$\bar{\nu}_{\mu}/\text{Hz}$	atm. μ/Hz	$R = f_{\nu}/f_{\mu}$
MAM	1.5×10^{-4}	5.2×10^{-5}	30.2	5.0×10^{-6}
STD_KURT	3.0×10^{-4}	1.1×10^{-4}	45.5	6.7×10^{-6}
BXL_KURT	2.2×10^{-4}	7.4×10^{-5}	35.1	6.3×10^{-6}

Table reflects overall normalisation as well as difference in excess in forward and backward region.

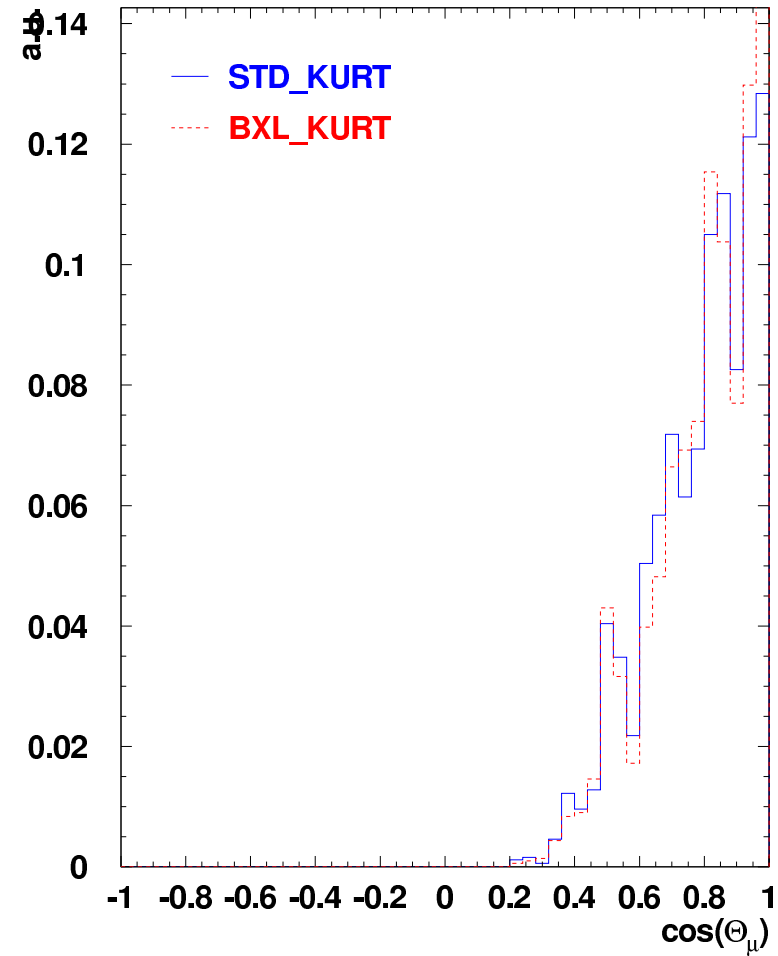
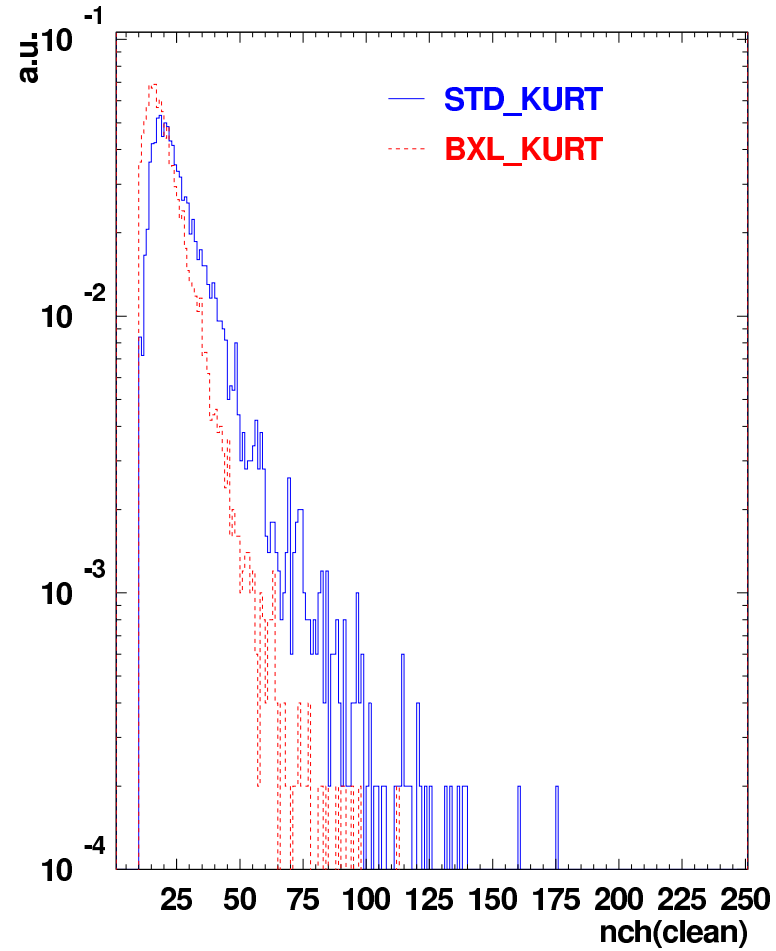
Effect on Signal Monte Carlo



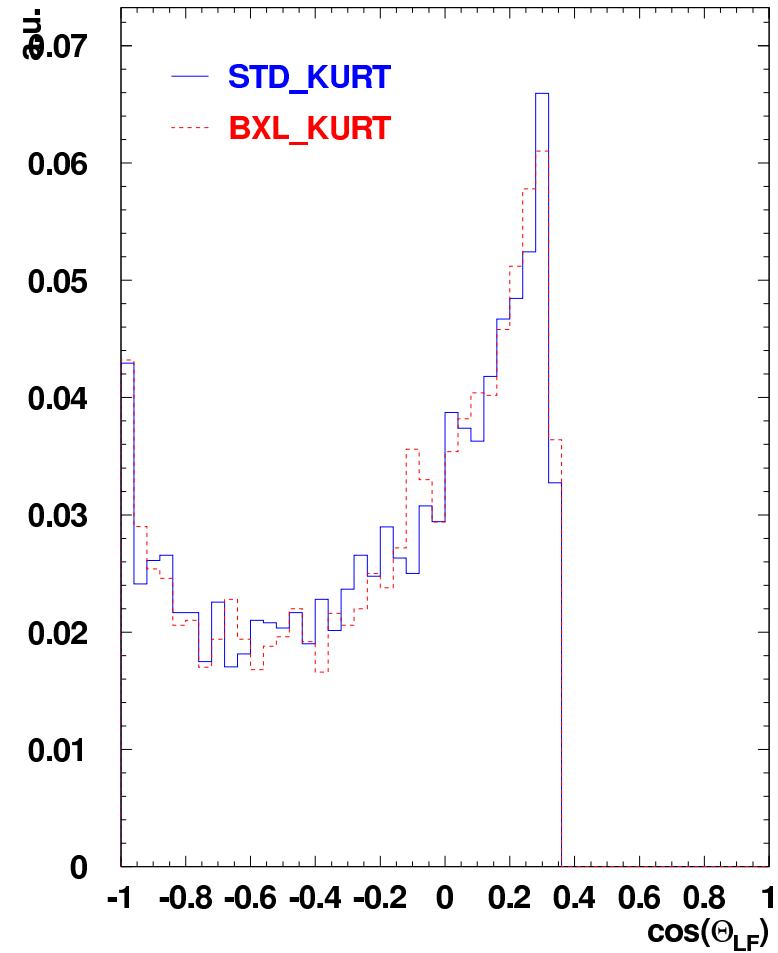
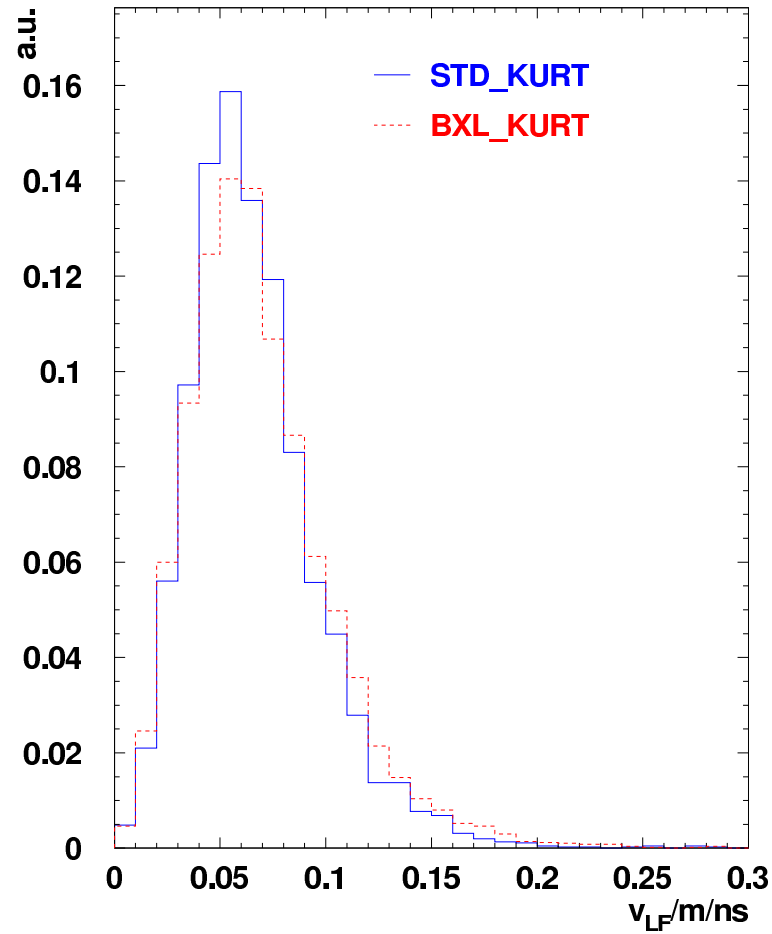
Effect on Signal Monte Carlo Reconstruction



Effect of Background Monte Carlo



Effect on Background Monte Carlo Reconstruction



Conclusion