



A Christmas Carol



Featuring Ghosts

- Past
- Present
- Future



The Ghost of Christmas Past



7 Preliminary Analyses Presented

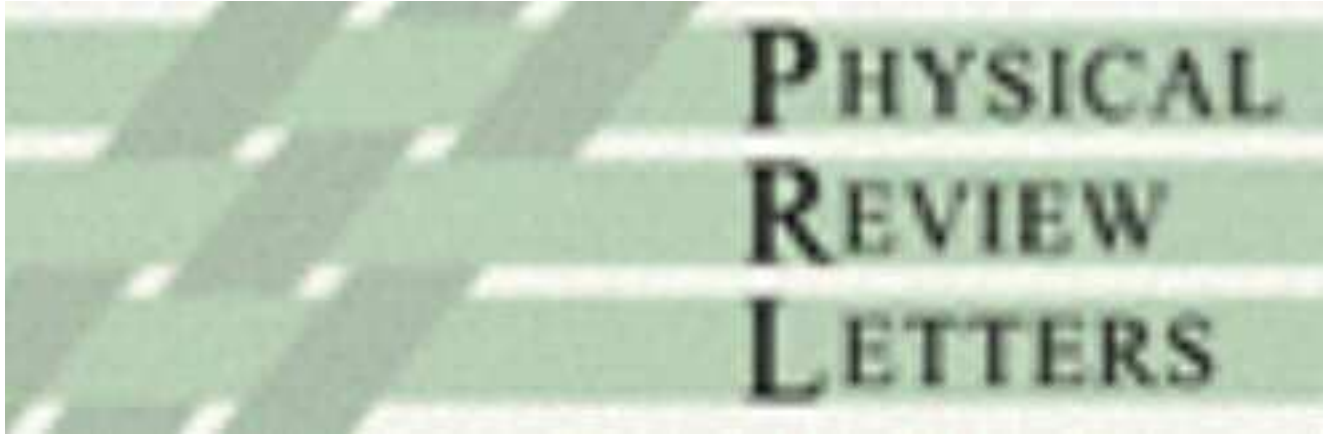
Very impressive showing,
broad physics interests

14 AWG readers, 21 RC members,...

Special thanks for the huge effort in a
short time while people were busy with
their own analyses!



The Ghost of Christmas Present



7 preliminary results which need to
be published soon

None of these (perhaps Lifetime) are
so unique that Belle could not reproduce these
results quickly...

Avoid post-Tau04 let down
Avoid temptation to add too many new things

Get these results in print!



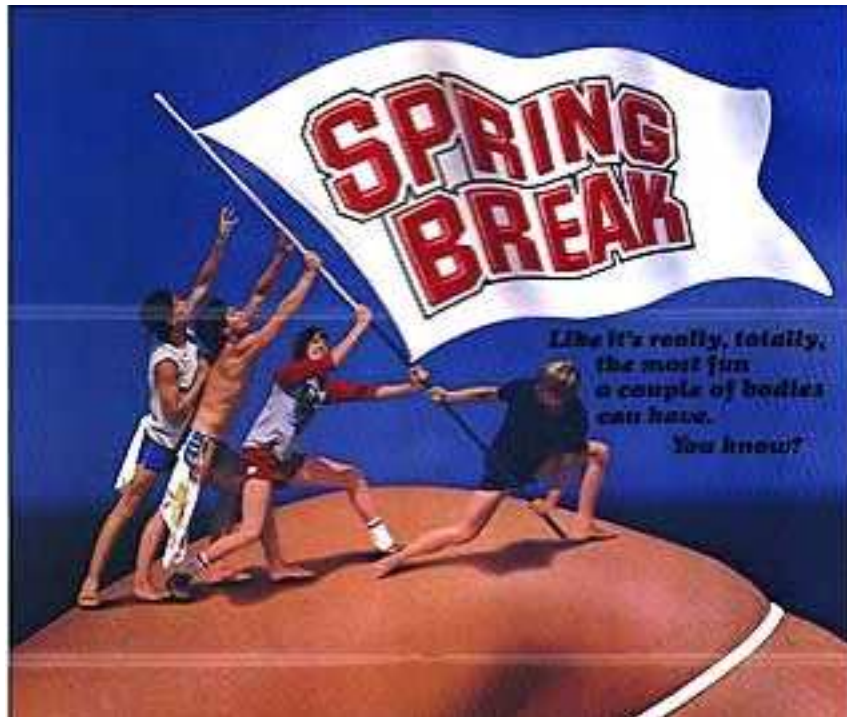
Ghost of Christmas (near) Future



We are trying to get two Moriond
Tau talks (one EW, one QCD)

Publications of Tau04 results would
be a natural reason to argue for these talks

CWR must start no later than Feb. 11th!



APS April Meeting
April 16-19, Tampa Florida

**Abstract Requests Due
before Christmas**

Only submit an abstract if you can really go...



Ghost of Christmas Future



Little data by next Summer

- Update existing analyses with full data
- Infill analysis with more details
- Start something new

Only after publishing current analysis...

Trigger/Filter

Tau and two-photon events are most sensitive to trigger/filter strategies

SP8 is designed to be used for **reprocessing**
This will likely start next Summer

If there is currently something wrong with the filter, we should fix it in the coming months!

No Tau/QED talk at CalTech trigger workshop...



Uncovered Analyses



Leptonic Decays

- **Hard to improve on direct**

$B(\tau^- \rightarrow \mu^- \bar{\nu}_\mu \nu_\tau)$ known to 0.35% (relative)

- **Plausible to improve on ratio**

$B(\tau^- \rightarrow \mu^- \bar{\nu}_\mu \nu_\tau) / B(\tau^- \rightarrow e^- \bar{\nu}_\mu \nu_\tau)$

Fundamental EW test

Sensitive to SUSY charged Higgs

Dipole Moments

- **CP-conserving “magnetic” dipole moment**
- **CP-violating “electric” dipole moment**

Identify decay modes

Use decay products to spin-analyze tau

Look for anomalous “tensor” couplings



Future AWG Work



Hadronic Moments

Combined analysis of many decay modes

e.g. $\pi\pi^0$, $\pi 2\pi^0$, $\pi 3\pi^0$, 3π , $3\pi\pi^0$, $3\pi 2\pi^0$

Common definitions critical to combine results

Can we start some coordination here?

CM2 era tools

Share common tools and object definitions

Make this “automatic” with AWG skims

Real benefit comes from systematic uncertainties

Systematic errors are very labor intensive.

Should avoid duplicating effort here...



Conclusions



Past

Great success at Tau04

Present

Must finish the job by
publishing these analyses

Future

Need to expand the program
and become more efficient