

American Plans for CPNSH

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(... for JoAnne Hewett)

- North American organizing effort
- Current activities
- Workshops in 2005



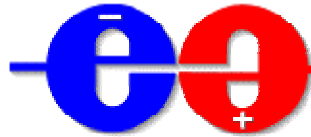
This mule is for JoAnne's benefit.
It reminds us of the benefit of good planning.

CPNSH: First NA "Efforts"

- The North American theory community responded with interest to the 1st CPNSH workshop
 - Special session added to American Linear Collider Physics Group workshop last summer
- MO and Heather Logan started spreading the word
- John Conway (experiment) has joined JoAnne Hewett as co-chairs of NA CPNSH community
- We need to:
 - organize our theory/simulation activities
 - stimulate more experimenter interest



Special Session Held At ALCPG/Victoria



American Linear Collider
Physics Group

Physics/New Physics: Thursday July 29. Room: West VIB.

Chair: S. Tkaczyk

8:00 - 8:25 **Higgsless Electroweak Physics**, Christophe Grojean, *Saclay* - [pdf](#)

8:25 - 8:50 **Higgsless in Victoria**, Tom Rizzo *SLAC* - [pdf](#)

8:50 - 9:15 **A Little Higgs with a Little UV Completion**, Puneet Batra, *Stanford University* - [pdf](#)

9:15 - 9:40 **The Littlest Higgs Boson at a Photon Collider**, Heather Logan, *University of Wisconsin* - [pdf](#)

9:40 - 10:00 **Coupling Determinations of the Little Higgs**, JoAnne Hewett, *SLAC* - [pdf](#)

CP Violation and Non-Standard Higgs (Joint with New Physics): Friday July 30. Room: West VIB

Chair: J. Hewett

10:30 - 11:10 **Report on May 2004 CERN Workshop on CP Violation and Nonstandard Higgs Physics**, Sabine Kraml, *CERN* - [ps](#)

11:10 - 11:30 **The NMSSM and Invisible Higgs**, Jack Gunion, *University of California, Davis* - [pdf](#)

11:30 - 11:50 **Signatures of Extended SUSY Models**, Bob McElrath, *University of California, Davis* - [pdf](#)

11:50 - 12:10 **A New Higgs Mass Bound in Extensions of the MSSM**, Puneet Batra, *Stanford University* - [pdf](#)

12:10 - 12:30 **Precision EW Data and the Mixed Radion-Higgs Sector**, Jack Gunion, *University of California, Davis* - [pdf](#)



Photon Collider Progress

- Mayda Velasco and Jeff Gronberg have been very active in working towards realistic search strategies
- They hope to work with creators of generators to resolve known problems and create a better generator platform
 - Perhaps Steve Mrenna can step in here
- Theoretical community is already on board



Marcela's Comments

This is just for the gamma-gamma collider option
Proposed projects to develop withing the Higgs ILC working group.

A) CP viol. in photon-photon-Higgs: MSSM_CP

- 1) $\gamma\gamma \rightarrow H_i$ (for a light Higgs)
 - $\rightarrow H_{i,j}$ (for heavy Higgs bosons) \ \ essent. all inclusive.
 - CP violation in the Higgs system and in the gamma-gamma-Higgs couplings
 - Consider the cases with linear/circular initial state polarization
 - Define and work out cross section and appropriate asymmetries
- 2) $\gamma\gamma \rightarrow H_i \rightarrow f \bar{f}$ ($t \bar{t}$, $\tau^+\tau^-$) \ \ exclusive
 - Final state angular correlation and spin asymmetries \ combined with initial-state polarizations
- 3) $\gamma\gamma \rightarrow H_i \rightarrow WW/ZZ$
 - A large corpus of material does exist already now in the Freiburg and Warsaw group; should be combined [mainly th and ex] and coherently put together
- 4) $\gamma\gamma \rightarrow$ multiple Higgs $H_i + H_j$
- 5) $\gamma\gamma \rightarrow H+H-$



TeVatron & LHC Need Jumpstart

- TeVatron groups are not covering CPX well at all
 - John Conway will address that
- TeVatron coverage of NSH spotty
 - Need more organized coverage
- More US LHC groups just about ready to focus:
 - Reconstruction efforts turning now to physics
 - MO particularly interested in systematic approach to NSH scenarios
- An international CPNSH yellowbook effort will stimulate progress on all those fronts



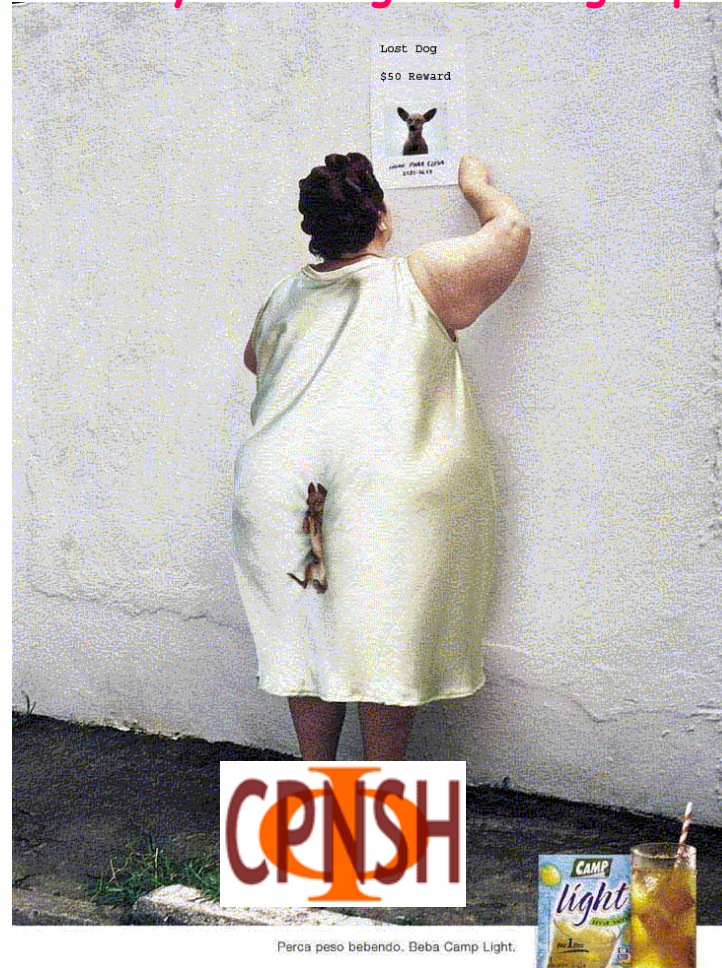
Opportunities for NA Organization

- 2005 will see lots of collider activity:
 - TeV4LHC
 - Dec 14: Higgs group at FNAL
 - Feb 2-3 at BNL: full meeting
 - Aspen Winter Workshop (Feb 13-19)
 - Theme includes planning for collider physics
 - LCWS'05 (March 18-22)
 - Aspen/Snowmass August & September:
 - Aspen Theory Center Collider workshop
 - August 14 - September 11
 - Focus on integrated TeVatron/LHC/LC future
 - ALCPG (August 14-27)



All I can offer immediately: Perhaps a new logo

SSB: Are you looking in the right places?



Perca peso bebendo. Beba Camp Light.



Mark Oreglia, CPNSH, 12/4/2004

