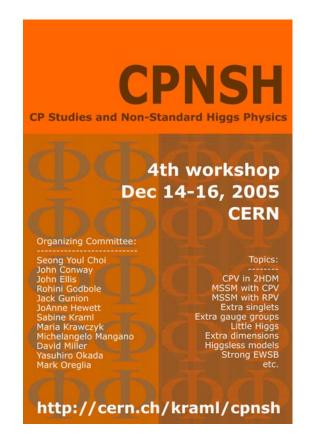


### CP Studies and Non-Standard Higgs Physics

Sabine Kraml Welcome and charge to the meeting 14-16 Dec 2005, CERN

### History of meetings

- 14-15 May 2004 at CERN
- 02-03 Dec 2004 at CERN
- 24-25 Mar 2005 at SLAC
- 14-16 Dec 2005 at CERN



Main purpose of <u>this</u> meeting is to prepare the report!

The Hitchhikers guide to non-standard Higgs physics (to be published as a Yellow Book)

### **Topics:** CPV in 2HDM MSSM with CPV MSSM with RPV Extra singlets Extra gauge groups Little Higgs Extra dimensions **Higgsless models** Strong EWSB etc.

### Structure of the report

Each topic/section consists of

- **1.** A paedagogical introduction to the subject, roughly of the order of 10 pages (review of the topic for non-experts, main ideas, main features, key parameters, signatures, model variants, etc.)
- **2. Individual contributions** of the order of 5 pages, discussing further ideas, more technical details, collider-specific issues, simulations, tools, etc. etc.

# Today

- The CP violating two Higgs dublet model
  - Thorough theory introduction (12p., H. Haber and M. Krawczyk)
  - Overview of phenomenology (4p., G. Grenier, H.H and M.K.)
  - ca. 10 individual contributions
- The MSSM with CP phases
  - Introduction by M.Boonekamp, M.Carena, S.Y.Choi, J.S. Lee and M.Schumacher: theory + phenomenology @ colliders
  - ca. 12 individual contributions, several talks at this meeting

#### Both sections in a very good state.

Drafts available here and on the web; please discuss and comment.

### **Tomorrow morning**

#### • SUSY models with an extra singlet

- Introduction by J. Gunion, D. Miller and A. Pilaftsis almost final
- They are all here: good opportunity to discuss !
- 5 individual contributions: field theoretic, phenomenological and cosmological aspects <sup>©</sup> but no experimental analyses <sup>®</sup>
- SUSY with R-parity violation
  - Introduction by M. Besancon and W. Porod in progress
  - 2 individual contributions = talks at this meeting

Copies of introductions will be made available during the meeting.

### Tomorrow afternoon

#### • Extra gauge groups

- Introduction by P. Langacker, A. Raspereza and S. Riemann, very good example of theory+experiment cooperation
- Talk by R. Nevzorov on ESSM
- Little Higgs models
  - Introdution by T. Gregoire, B. McElrath and H. Logan in progress
  - Overview talk by A. Deandrea
- Extra dimensions: ADD and RS
  - ADD introduction ready, D. Dominici is here
  - RS: intro in progress (J. Hewett, T. Rizzo, S. Ferrag)
  - Talk on graviton search in CMS by V. Litvin

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# Friday morning

- Higgsless models
  - Intro by B. Lillie and J. Terning in progress
  - Talk by D. Dominici at this meeting
- Strong electroweak symmetry breaking
  - Chiral EWSB: W. Kilian, T. Han, in progress
  - Dynamical EWSB: G. Azuelos and F. Sannino (intro is ready, review talk by F.Sannino)
- Nonstandard Higgs and EW baryogenesis
  - Review talk by S. Huber

Copies of introductions will be made available during the meeting.

### General comments

- Higgs-sector CPV: very active, good progress
- Other models: good progress for introductions but lack of individual (th+exp) contributions
- We have foreseen plenty of time for discussions
- Have a look at the available material (on the webpage, handouts) and give us your feedback
- Organisers and conveners meeting Thu 16:10
- Final discussion (all) on Friday 13:30

## Talks

 Scheduled times are 20min or 30min plus 10min of discussion