

Strategy Workshop on High-Energy Particle Physics in Switzerland

SWHEPPS 2016

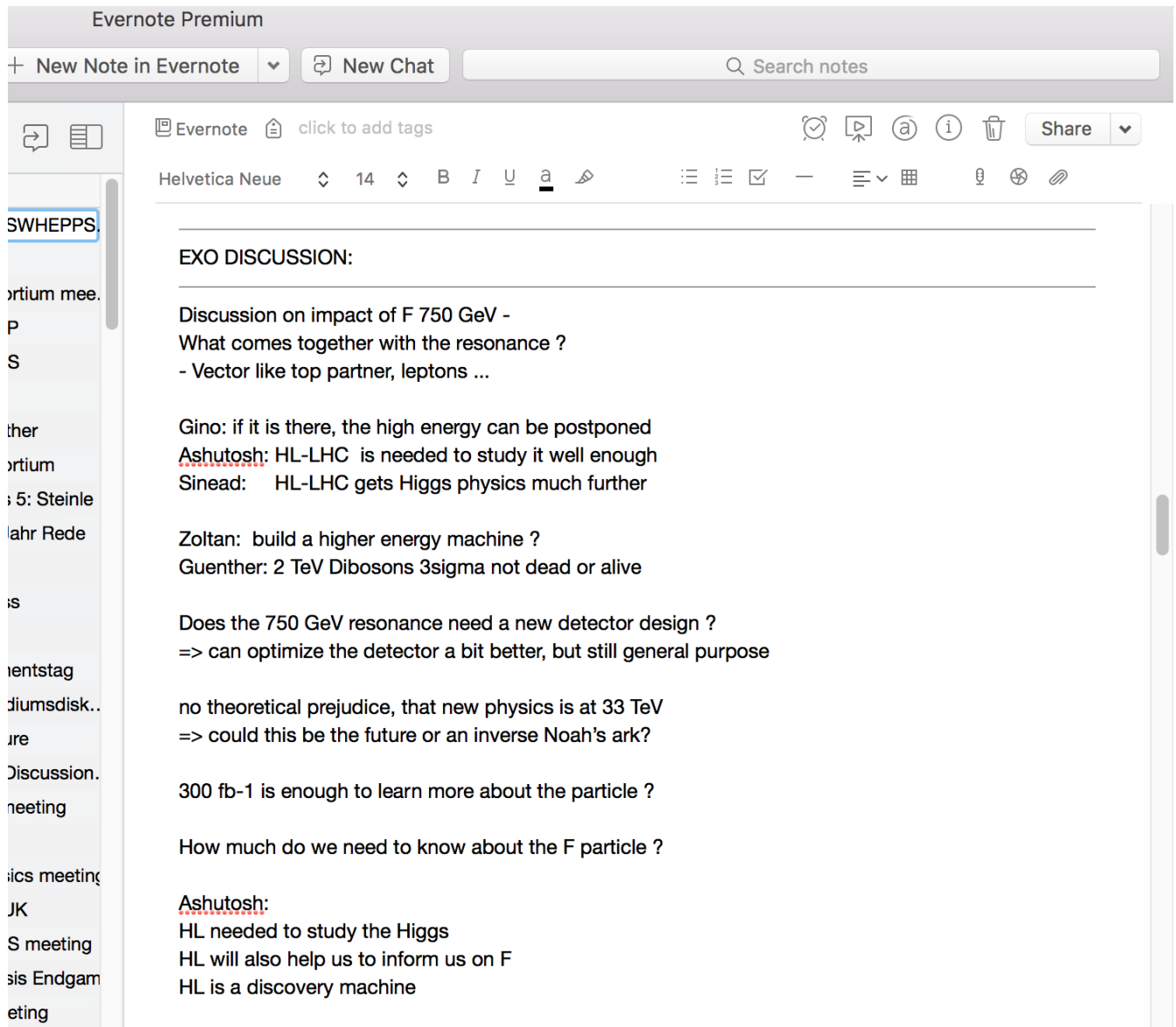
7-9 June 2016, Seminarhotel am Ägerisee



Aim of the Workshop

- Take stock of the present state of the field in pillar 1 (comprising physics at the high energy and intensity frontiers)
- Identify key elements influencing our CH strategy for pillar 1 research in the next 5-10-15 years, or – failing to identify those now – define milestones when identifying those elements should become clearer.
- Act as kick-off meeting to prepare a Pillar 1 white paper on future activities, ideally to be finalized by the end of 2016 or early 2017.
- We do NOT foresee to discuss resources needed or available at this stage (even though they will play an important role)

Some of my Notes



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SWHEPPS

EXO DISCUSSION:

Discussion on impact of F 750 GeV -
 What comes together with the resonance ?
 - Vector like top partner, leptons ...

Gino: if it is there, the high energy can be postponed
Ashutosh: HL-LHC is needed to study it well enough
 Sinead: HL-LHC gets Higgs physics much further

Zoltan: build a higher energy machine ?
 Guenther: 2 TeV Dibosons 3sigma not dead or alive

Does the 750 GeV resonance need a new detector design ?
 => can optimize the detector a bit better, but still general purpose

no theoretical prejudice, that new physics is at 33 TeV
 => could this be the future or an inverse Noah's ark?

300 fb⁻¹ is enough to learn more about the particle ?

How much do we need to know about the F particle ?

Ashutosh:
 HL needed to study the Higgs
 HL will also help us to inform us on F
 HL is a discovery machine

Why Write a Whitepaper ?

- Consensus expressed in series of roadmaps & whitepapers and « pillar » workshops
 - Also taking into account international strategies (European Strategy, US P5 Strategy, ApPEC)
- Whitepaper can inform ...
 - Input into the next update of the European Strategy
 - ERI and SNF about needs in the future (besides long term FLARE table)
 - Consensus building in community about priorities



2004: initial roadmap
2011: roadmap update
2013: white paper on ground-based ApP strategy
2015: white paper on neutrino strategy
201x: Pillar 1 whitepaper

When to write a Pillar 1 Whitepaper ?

- European Strategy of Particle Physics is expected to be updated “routinely” by 2019
 - Country input needed by 2018 – includes input from other pillars
- Next ERI Dispatch discussion for 2021-2023 will start around 2019
- New CHIPP Roadmap after 2019 ? (15 years)

- Counting backwards need to start ~now
 - Paper can re-affirm existing priorities but also comment on opportunities due to recent developments
 - Comment on potential of recent anomalies
- F(750) expected to be “resolved” this year

The Way Forward (Proposal)

- Convenors are asked to provide written summary of their sessions + discussions by end of June 2016
- Summary of workshop is sent to CHIPP board members well before CHIPP meeting at Lugano 22 August
 - CHIPP board deliberates on process and timing for a pillar1 whitepaper
 - Proposal to endorse convenors to act as editors for whitepaper sections
 - Intermediate CHIPP board follow-up meeting after 750 GeV saga may be necessary
- CHIPP EB works out proposal on how to prepare CHIPP wide input for the European Strategy
 - To be discussed and ideally endorsed in Lugano by the CHIPP board as well

THANK YOU: Speakers and Convenors!

- (1) Higgs + (2) SM: S. Farrington, M. Donega, S. Pozzorini,
K. Theofilatos, R. Hawking, F. Riva
Florenca Canelli, Michele Weber
- (3) LHC searches and perspectives: R. Torre, A. Kotwal, JP Chou.
Ben Kilminster, Tobias Golling
- (4) Flavor/Flavor BSM + (5) Low Energy P. Koppenburg², N. Serra
F. Blanc, A. Crivellin, A. Papa, A. Knecht
Adrian Signer, Klaus Kirch, Olivier Schneider
- (6) Theory + BSM Connections to other fields: R. Barbieri, G. Isidori,
B. Anastasiou, A. Katz
Gino Isidori, Ricardo Ratazzi, Thomas Gehrmann
- (7) Future Accelerators: B. Auchmann, T. Garvey, R. Ischebeck
Lenny Rifkin
- (8) Future Detectors: P. Allport, D. Contardo, M. Tobin, D. Barney, N. Berger
Roland Horisberger, Sergio Gonzalez

THANK YOU: Support Team

- Scientific:
 - Marc Türler (turler@physik.uzh.ch, starting Wed)
 - Mauro Donega (mauro.donega@cern.ch)
- Administration: (swhepps2016@phys.ethz.ch)
 - Gabriela Amstutz
 - Caroline Keufer-Platz



**thank you all and have
a safe trip home!**