ATLAS-CZ-SK 2016

Thursday 2 June 2016 - Friday 3 June 2016

Zilina, Slovakia

Book of Abstracts

Contents

Theory and BSM / 3

The ATLAS limits for the tBESS-like Lagrangian

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In this theory work, we investigate how the current ATLAS data constrain the higgs-related couplings of the BSM effective Lagrangian in which new vector resonances are explicitly present. As novelty, we consider the possibility when the Higgs-to-EW-gauge-boson and Higgs-to-vector-resonance interactions are disentangled.

subject:

Higgs Physics and BSM

suggest duration of your talk:

30

Other / 7

Status of ATLAS Masterclasses

Author: Ivan Melo[1]

Co-authors: Josef Juran [2]; Mikulas Gintner [1]

[1] *University of Zilina (SK)*

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I will give an overview of ATLAS Masterclasses for high-school students, the physics contents and experience we have with Masterclasses globally and in Slovakia and the Czech Republic in particular.

subject:

Other (suggest/specify in the Comments field))

suggest duration of your talk:

15 min

Theory and BSM / 19

SUSY at TeV scale

Author: Tomas Blazek[1]

Co-authors: Peter Matak [1]; Zuzana Sinska [1]

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Review of SUSY searches including indirect searches from rare decays will be given.

subject:

Theory and BSM

suggest duration of your talk:

20 - 30 min

Theory and BSM / 21

W and Z masses in BSM

Author: Petr Beneš[1]

[1] *Institute of Experimental and Applied Physics*

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We present expressions of the Pagels–Stokar type for the masses of the W and Z bosons in terms of the quark and lepton self-energies. By introducing a genuine new term in the gauge boson–fermion–anti-fermion vertex we manage to accomplish three main achievements: First, we show that the similar results existing in literature lead, in general, to a non-symmetric gauge boson mass matrix and we fix this flaw. Second, we consider the case of any number of fermion generations with general mixing. Third, we include in our analysis also an arbitrary number of right-handed neutrinos, together with the left-handed and right-handed neutrino Majorana masses (self-energies). On top of that, we give also a correction to the original Pagels–Stokar formula for the pion decay constant in QCD.

subject:

Theory and BSM

suggest duration of your talk:

15min

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Neutrinos and Axions

Author: Adam Smetana[1]

[1] *UTEF, CUT in Prague*

Corresponding Author: adam.smetana@utef.cvut.cz

Right-handed neutrino fields are useful to explain tiny neutrino masses. Axion field is useful to explain a tiny value of effective CP violating theta parameter within QCD. Both provide candidate particles for Dark Matter. Their observable effects, however, are predicted to be extremely weak.

In particular, the neutrinoless double beta decay and axion-photon conversion represent yet un-observed phenomena with discovery potential and also with great information content. For both phenomena a resonant enhancement has been proposed recently. In the talk we want to review some of these progressive ideas.

subject:

Theory and BSM

suggest duration of your talk:

20-30 min

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Closing

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Welcome

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Workshop Banquet

On Thursday, May 2, the Workshop Banquet at Korzo restaurant will take place at 7pm.