强子物理新发展研讨会

Report of Contributions

https://indico.ihep.ac.cn/e/11349

Contribution ID: **0** Type: **not specified**

BESIII 上超子物理及其 CP 破坏实验研究进展

Friday, 24 April 2020 09:00 (45 minutes)

The CKM mechanism for CP violation in the Standard Model (SM) fails to explain the matter-antimatter asymmetry of the Universe by more than 10 orders-of-magnitude. This suggests that additional CP violating processes occur, and motivates aggressive searches for new, non-SM sources of CP violation. To date, CP violation in hyperon decays have never been observed. Standard Model CP violations in hyperon decays are expected to be ~ 10ˆ-4 to 10ˆ-5, and any value higher than this level would be a signature of new, beyond the SM physics.
Currently BESIII has collected about 10 billion J/psi decay events, the decay rate of J/psi to hyperon-anti-hyperon pairs are 10ˆ-3, which indicates that the produced hyperon pairs will be a few millions. In this talk I will present the first observation of transverse polarization of hyperon-anti-hyperon from the e+e- −> J/psi −> hyperon-anti-hyperon pairs, which allows us to measure the decay asymmetry parameters of both hyperon and anti-hyperon, therefore CP asymmetry in the hyperon decay can be precisely obtained with 5 dimensional fit to data. We expect that the study of hyperon physics will be the next frontier of the SM CP searches.

Primary author: Prof. LI, Hai-Bo (IHEP)

Presenter: Prof. LI, Hai-Bo (IHEP)

Contribution ID: **1** Type: **not specified**

Hadron Structure on the Light-front

Friday, 24 April 2020 15:20 (45 minutes)

In this talk I will report our recent progress on the structure of light mesons, heavy quarkonia and the nucleon studied in a basis light-front approach. I will present the preliminary results on the observables such as the form factors, the parton distribution function and the generalized parton distribution functions of these systems.

Primary author: ZHAO, Xingbo (Iowa State University)

Presenter: ZHAO, Xingbo (Iowa State University)

Contribution ID: **2** Type: **not specified**

Lattice calculation of hadron structure: parton distribution functions

Sunday, 26 April 2020 14:30 (45 minutes)

In this talk, I will introduce the new method of using Lattice QCD to simulate the Parton distribution functions.

Primary author: Prof. WANG, Wei (Shanghai JiaoTong University)

Presenter: Prof. WANG, Wei (Shanghai JiaoTong University)

Contribution ID: **3** Type: **not specified**

Identifying the $\Sigma_b(6097)$, $\Xi_b(6227)$ and Ω_b as P-wave bottom baryons

Sunday, 26 April 2020 15:20 (45 minutes)

In this talk, I would like to report our recent studies on spectra and decay properties of the excited bottom baryons, $\Sigma_b(6097)$, $\Xi_b(6227)$ and four narrow Ω_b states, which were newly discovered by LHCb collaboration. At first, we calculated the spectra of P-wave bottom baryons by using the QCD sum rule. The estimations are well consistent with the experimental results. Then We also utilized the method of light–cone sum rules, which is widely used to study the hadron decays in recent years. Our estimations suggest that the bottom baryons $\Sigma_b(6097)^{\pm}$ and $\Xi_b(6227)^{-}$ both belong to the P–wave bottom baryon doublet $[\mathbf{6}F, 2, 1, \lambda]$, whose color is symmetric $\mathbf{6}_F$, the total angular momentum of light system is 2, the spin of light system is 1, and it is λ–type excitation. And the four narrow Ω_b states can also be explained as the P-wave bottom baryons but belong to different excitation types. We also made some other predictions.

Primary author: Dr CUI, Er-Liang (Northwest A&F University)

Presenter: Dr CUI, Er-Liang (Northwest A&F University)

Contribution ID: **4** Type: **not specified**

BESIII 上的超子极化研究

Sunday, 26 April 2020 09:50 (45 minutes)

BESIII 上的超子极化研究

Primary author: Dr PING, Rong-Gang (高能所)

Presenter: Dr PING, Rong-Gang (高能所)

Contribution ID: **5** Type: **not specified**

Belle 实验上奇异粲介子对系统的研究

Friday, 24 April 2020 09:50 (45 minutes)

Belle 实验上奇异粲介子对系统的研究

Primary author: 贾, 森 (Beihang University)

Presenter: 贾, 森 (Beihang University)

Contribution ID: **6** Type: **not specified**

1-+ 奇特态

Saturday, 25 April 2020 16:10 (45 minutes)

1-+ 奇特态

Primary author: 董, 相坤 (UCAS)

Presenter: 董, 相坤 (UCAS)

Contribution ID: **7** Type: **not specified**

BESIII 实验上的粲强子衰变研究

Saturday, 25 April 2020 09:00 (45 minutes)

BESIII 实验上的粲强子衰变研究

Primary author: Prof. LYU, Xiao-Rui (University of Chinese Academy of Sciences)

Presenter: Prof. LYU, Xiao-Rui (University of Chinese Academy of Sciences)

Contribution ID: **8** Type: **not specified**

The newly observered Omega(2012) as a KbarXi(1530) hadronic molecule

Friday, 24 April 2020 10:40 (45 minutes)

Recently, Belle collaboration measured the ratios of the branching fractions of the newly observed $\Omega(2012)$ excited state. They did not observe significant signals for the $\Omega(2012) \to \bar{K}\Xi^*(1530) \to \bar{K}\pi\Xi$ decay, and reported an upper limit for the ratio of the three body decay to the two body decay mode of $\Omega(2012) \to \bar{K}\Xi$. In this work, we revisit the newly observed $\Omega(2012)$ from the molecular perspective where this resonance appears to be a dynamically generated state with spin-parity $3/2^-$ from the coupled channels interactions of the $\bar{K}\Xi^*(1530)$ and $\eta\Omega$ in s-wave and $\bar{K}\Xi$ in d-wave. With the model parameters for the d-wave interaction, we show that the ratio of these decay fractions reported recently by the Belle collaboration can be easily accommodated.

Primary author: Prof. 谢, 聚军 (中国科学院近代物理研究所)

Presenter: Prof. 谢, 聚军 (中国科学院近代物理研究所)

Contribution ID: **9** Type: **not specified**

Dibaryons and pentaquarks in quark models

Friday, 24 April 2020 16:10 (45 minutes)

Dibaryons and pentaquarks in quark models

Primary author: Prof. HUANG, Hongxia (Nanjing Normal University)

Presenter: Prof. HUANG, Hongxia (Nanjing Normal University)

Contribution ID: **10** Type: **not specified**

ssss 四夸克态

Saturday, 25 April 2020 14:30 (45 minutes)

本次报告准备介绍我们使用 QCD 求和规则研究 ssss 四夸克强子态的一些情况。在研究工作中，我们构造了所有可能的试探流，然后考虑了这些试探流的混合，得到的结果和相关实验进行了比较。

Primary author: Dr CHEN, Hua-Xing (Beihang University)

Presenter: Dr CHEN, Hua-Xing (Beihang University)

Contribution ID: **11** Type: **not specified**

Recent results on hadron spectroscopy at LHCb

Saturday, 25 April 2020 09:50 (45 minutes)

I will present several new results on observations of excited baryons at LHCb

Primary author: ZHANG, Liming (Tsinghua University)

Presenter: ZHANG, Liming (Tsinghua University)

Contribution ID: **12** Type: **not specified**

Decay properties of molecular states

Saturday, 25 April 2020 10:40 (45 minutes)

Decay properties of molecular states

Primary author: 陈, 殿勇 (东南大学)

Presenter: 陈, 殿勇 (东南大学)

Contribution ID: **13** Type: **not specified**

Jetomography of QGP in heavy-ion collisions

Sunday, 26 April 2020 09:00 (45 minutes)

Jetomography of QGP in heavy-ion collisions

Primary author: Prof. WANG, Xin-Nian (Central China Normal University/Lawrence Berkeley National Laboratory)

Presenter: Prof. WANG, Xin-Nian (Central China Normal University/Lawrence Berkeley National Laboratory)

Contribution ID: **14** Type: **not specified**

DDK 3-body system in Lattice QCD

Sunday, 26 April 2020 10:40 (45 minutes)

The lattice QCD simulation has been generating 3-body hadron spectrum already. The finite volume analysis is necessary to translate these lattice spectra in a finite volume to physical information in the infinite volume. Based on non-relativistic effective field theory, we show the preliminary result of lattice spectrum for DDK 3-body system. In the work, the 2-body information is input referring to arXiv:1906.11995. And 3-body bound state predicted by arXiv:1906.11995 is reproduced in effective field theory. The lattice spectra both below and above threshold are given. They can be compared with future lattice 3-body simulation.

Primary author: Dr PANG, Jin-Yi (University of Shanghai Science and Techology)

Co-author: Dr WU, Jia-Jun (IHEP)

Presenter: Dr PANG, Jin-Yi (University of Shanghai Science and Techology)

Contribution ID: **15** Type: **not specified**

Why DSEs?

Friday, 24 April 2020 14:30 (45 minutes)

Why DSEs?

Primary author: 常, 雷 (Nankai University)

Presenter: 常, 雷 (Nankai University)

Contribution ID: **16** Type: **not specified**

Triangle singularity appearing as an X(3872)-like peak in $B \to (J/\psi\pi + \pi -)K\pi$

Sunday, 26 April 2020 16:10 (45 minutes)

Triangle singularity appearing as an X(3872)-like peak in $B \to (J/\psi\pi + \pi -)K\pi$

Primary author: Dr NAKAMURA, Satoshi (Universidade Cruzeiro do Sul)

Presenter: Dr NAKAMURA, Satoshi (Universidade Cruzeiro do Sul)

Contribution ID: **17** Type: **not specified**

会议开幕

Friday, 24 April 2020 08:50 (10 minutes)

Contribution ID: **18** Type: **not specified**

BESIII 上超子物理及其 CP 破坏实验研究进展

Presenter: Prof. 李, 海波 (高能所)

Contribution ID: **19** Type: **not specified**

Belle 实验上奇异粲介子对系统的研究

Presenter: 贾, 森 (Beihang University)

Contribution ID: **20** Type: **not specified**

Solution to the Y problem

Presenter: 王, 俊璋 (Lanzhou University)

Contribution ID: **21** Type: **not specified**

Solution to the Y problem

Saturday, 25 April 2020 15:20 (45 minutes)

Solution to the Y problem

Primary author: 王, 俊璋 (Lanzhou University)

Presenter: 王, 俊璋 (Lanzhou University)

Contribution ID: **22** Type: **not specified**

闭幕式

Sunday, 26 April 2020 17:00 (10 minutes)

Presenter: PENG, Hai-Ping (USTC)