

强子物理新发展研讨会

Report of Contributions

Contribution ID: 0

Type: **not specified**

BESIII 上超子物理及其 CP 破坏实验研究进展

Friday, April 24, 2020 9:00 AM (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 $\sim 10^{-4}$ to 10^{-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/ψ decay events, the decay rate of J/ψ to hyperon-anti-hyperon pairs are 10^{-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 $e^+e^- \rightarrow J/\psi \rightarrow$ 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, April 24, 2020 3:20 PM (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, April 26, 2020 2:30 PM (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, April 26, 2020 3:20 PM (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, April 26, 2020 9:50 AM (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, April 24, 2020 9:50 AM (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, April 25, 2020 4:10 PM (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, April 25, 2020 9:00 AM (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 observed Omega(2012) as a $\bar{K}\Xi(1530)$ hadronic molecule

Friday, April 24, 2020 10:40 AM (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 $\Omega(2012) \rightarrow \bar{K}\Xi^*(1530) \rightarrow \bar{K}\pi\Xi$ decay, and reported an upper limit for the ratio of the three body decay to the two body decay mode of $\Omega(2012) \rightarrow \bar{K}\Xi$. 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, April 24, 2020 4:10 PM (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, April 25, 2020 2:30 PM (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, April 25, 2020 9:50 AM (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, April 25, 2020 10:40 AM (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, April 26, 2020 9:00 AM (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, April 26, 2020 10:40 AM (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 Technology)

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

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

Contribution ID: 15

Type: **not specified**

Why DSEs?

Friday, April 24, 2020 2:30 PM (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 $B \rightarrow (J/\psi\pi + \pi^-)K\pi$

Sunday, April 26, 2020 4:10 PM (45 minutes)

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

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, April 24, 2020 8:50 AM (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, April 25, 2020 3:20 PM (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, April 26, 2020 5:00 PM (10 minutes)

Presenter: PENG, Hai-Ping (USTC)