Conference on Flavour Physics and CP violation (FPCP) 2020

Report of Contributions

https://indico.cern.ch/e/838862

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

Lunch

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

FPCP 2021 Fudan, Shanghai

Friday 12 June 2020 13:30 (10 minutes)

Presenter: Prof. SHEN, Chenging

Session Classification: Closeout and announcement of FPCP 2021 (Fudan, Shanghai)

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

Theory overview of multiquark states

Wednesday 10 June 2020 15:00 (30 minutes)

Presenter: MAIANI, Luciano (Sapienza Universita e INFN, Roma I (IT))

Session Classification: Multiquarks & co.

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

Hadronic molecules with heavy quarks

Wednesday 10 June 2020 12:10 (25 minutes)

Presenter: GUO, Feng-Kun

Session Classification: Multiquarks & co.

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

Results from BESIII

Wednesday 10 June 2020 12:35 (25 minutes)

Presenter: Dr GENG, Cong

Session Classification: Multiquarks & co.

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

Results from the LHC

Wednesday 10 June 2020 13:00 (25 minutes)

Presenter: CARDINALE, Roberta (INFN e Universita Genova (IT))

Session Classification: Multiquarks & co.

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

Results from the B factories

Wednesday 10 June 2020 13:25 (25 minutes)

Presenter: SHEN, Chengping (Beihang University)

Session Classification: Multiquarks & co.

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

Theory of strange decays

Tuesday 9 June 2020 11:30 (30 minutes)

Presenter: PICH, Antonio (IFIC, U. Valencia -.)

Session Classification: Strangeness

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

Status of lattice calculations for strange processes

Tuesday 9 June 2020 12:00 (30 minutes)

Presenter: SACHRAJDA, Chris (University of Southampton)

Session Classification: Strangeness

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

Results from NA62

Tuesday 9 June 2020 12:55 (25 minutes)

Presenter: FANTECHI, Riccardo (INFN Sezione di Pisa, Universita' e Scuola Normale Superiore, P)

Session Classification: Strangeness

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

Results from KOTO

Tuesday 9 June 2020 12:30 (25 minutes)

Presenter: SHIOMI, koji (High Energy Accelerator Research Organization)

Session Classification: Strangeness

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

Results from LHCb

Tuesday 9 June 2020 13:20 (25 minutes)

Presenter: DETTORI, Francesco (Universita e INFN, Cagliari (IT))

Session Classification: Strangeness

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

Latest results on g-2

Wednesday 10 June 2020 17:45 (30 minutes)

Presenter: Dr YUCEL, Esra Barlas

Session Classification: Charged Leptons

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

Status of (g-2) theory

Wednesday 10 June 2020 17:20 (25 minutes)

Presenter: STOECKINGER, Dominik (TU Dresden)

Session Classification: Charged Leptons

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

Status of MEGIII and Mu3e at PSI

Monday 8 June 2020 10:15 (25 minutes)

Presenter: IWAMOTO, Toshiyuki

Session Classification: Charged Leptons

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

b -> sll decays: what we learned and what we still hope to learn

Monday 8 June 2020 12:00 (30 minutes)

Presenter: ISIDORI, Gino (Universitaet Zuerich (CH))

Session Classification: b->s(d) ll and other rare b decays

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

Theory status of radiative b decays

Monday 8 June 2020 15:25 (25 minutes)

Presenter: STEINHAUSER, Matthias (KIT)

Session Classification: b->s(d) ll and other rare b decays

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

Recent progress on Form Factors and Charm loop uncertainties

Monday 8 June 2020 15:00 (25 minutes)

Presenter: VAN DYK, Danny (TU München)

Session Classification: b->s(d) ll and other rare b decays

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

Experimental status on b−>s(d) mumu transitions

Monday 8 June 2020 12:30 (25 minutes)

Presenter: WANG, Dayong (Peking University (CN))

Session Classification: b->s(d) ll and other rare b decays

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

Experimental status on LFU tests in b–>s(d)ll transitions

Monday 8 June 2020 12:55 (25 minutes)

Presenter: MULDER, Mick (CERN)

Session Classification: b->s(d) ll and other rare b decays

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

Experimental status of radiative b decays

Monday 8 June 2020 15:50 (25 minutes)

Presenter: WATANUKI, Shun

Session Classification: b->s(d) ll and other rare b decays

Contribution ID: **23** Type: **not specified**

Status of b->sll and b->sgamma global fits

Monday 8 June 2020 13:20 (25 minutes)

Presenter: DESCOTES-GENON, Sebastien (Laboratoire de Physique Théorique d'Orsay)

Session Classification: b->s(d) ll and other rare b decays

Contribution ID: **24** Type: **not specified**

|Vib| measurements in SL b decays

Tuesday 9 June 2020 09:00 (30 minutes)

Presenter: ROTONDO, Marcello (INFN e Laboratori Nazionali di Frascati (IT))

Session Classification: Semileptonic b decays

Contribution ID: **25** Type: **not specified**

SL B decays from Belle

Session Classification: Semileptonic b decays

Contribution ID: **26** Type: **not specified**

LFU tests in SL b decays

Tuesday 9 June 2020 09:30 (30 minutes)

Presenter: SANDILYA, Saurabh (University of Cincinnati)

Session Classification: Semileptonic b decays

Contribution ID: **27** Type: **not specified**

SL form factors in lattice QCD

Tuesday 9 June 2020 10:00 (30 minutes)

Presenter: GAMIZ, Elvira (University of Granada)

Session Classification: Semileptonic b decays

Contribution ID: **28** Type: **not specified**

Semileptonic b decays

Tuesday 9 June 2020 10:30 (30 minutes)

Presenter: GAMBINO, paolo (università di torino)

Session Classification: Semileptonic b decays

Contribution ID: **29** Type: **not specified**

CPV in charm

Tuesday 9 June 2020 15:00 (30 minutes)

Presenter: GROSSMAN, Yuval (Cornell University (US))

Session Classification: Charm

Contribution ID: **30** Type: **not specified**

Rare charm decays

Tuesday 9 June 2020 15:30 (30 minutes)

Presenter: HILLER, Gudrun (Technische Universitaet Dortmund (DE))

Session Classification: Charm

Contribution ID: **31** Type: **not specified**

Charm results from e+e- machines

Tuesday 9 June 2020 16:00 (30 minutes)

Presenter: GILMAN, Alex

Session Classification: Charm

Contribution ID: **32** Type: **not specified**

Charm results from hadron machines

Tuesday 9 June 2020 16:30 (30 minutes)

Presenter: MITZEL, Dominik Stefan (CERN)

Session Classification: Charm

Contribution ID: **33** Type: **not specified**

Charm results from LHCb

Session Classification: Charm

Contribution ID: **34** Type: **not specified**

Flavor physics at high pT

Monday 8 June 2020 10:40 (25 minutes)

Presenter: GRELJO, Admir (CERN)

Session Classification: high - PT

Contribution ID: **35** Type: **not specified**

Higgs Flavor

Thursday 11 June 2020 17:40 (25 minutes)

Presenter: SOREQ, Yotam (CERN)

Session Classification: high - PT

Contribution ID: **36** Type: **not specified**

Top physics at the LHC

Thursday 11 June 2020 18:05 (25 minutes)

Presenter: JOHNS, Kenneth (University of Arizona (US))

Session Classification: high - PT

Contribution ID: **37** Type: **not specified**

Higgs results from the LHC

Thursday 11 June 2020 17:15 (25 minutes)

Presenter: CUEVAS, Javier (Universidad de Oviedo (ES))

Session Classification: high - PT

Contribution ID: **38** Type: **not specified**

Searches for Z' and LQ at the LHC

Monday 8 June 2020 11:35 (25 minutes)

Presenter: LI, Quanyin (University of Science and Technology of China (CN))

Session Classification: high - PT

Contribution ID: **39** Type: **not specified**

Experimental status of CPV in Bs and Bd mixing

Thursday 11 June 2020 15:50 (25 minutes)

Presenter: MEJIA GUISAO, Jhovanny Andres (Universidad de Antioquia (CO))

Session Classification: CPV in B decays

Contribution ID: **40** Type: **not specified**

Measurement of hadronic inputs for gamma at BESIII

Thursday 11 June 2020 12:20 (25 minutes)

Presenter: Dr HOU, Yingrui (UCAS)

Session Classification: CPV in B decays

Contribution ID: **41** Type: **not specified**

Experimental status of gamma

Thursday 11 June 2020 12:45 (25 minutes)

Presenter: KENZIE, Matthew William (University of Warwick (GB))

Session Classification: CPV in B decays

Contribution ID: **42** Type: **not specified**

CPV in B decays

Thursday 11 June 2020 16:15 (30 minutes)

Presenter: LONDON, David (Universite de Montreal)

Session Classification: CPV in B decays

Contribution ID: **43** Type: **not specified**

Status of CKM fits

Thursday 11 June 2020 11:30 (25 minutes)

Presenter: MIYABAYASHI, Kenkichi (Nara Women's University)

Session Classification: CPV in B decays

Contribution ID: **44** Type: **not specified**

TH2 (UTFit)

Session Classification: CPV in B decays

Contribution ID: **45** Type: **not specified**

Experimental status of CPV in B-> 3h

Thursday 11 June 2020 11:55 (25 minutes)

Presenter: VOROBYEV, Vitaly (Novosibirsk State University)

Session Classification: CPV in B decays

Contribution ID: **46** Type: **not specified**

Experimental status of CPV in B->4h

Thursday 11 June 2020 15:25 (25 minutes)

Presenter: VIEITES DIAZ, Maria (EPFL - Ecole Polytechnique Federale Lausanne (CH))

Session Classification: CPV in B decays

Contribution ID: **47** Type: **not specified**

Latest lattice inputs to B mixing parameters

Thursday 11 June 2020 15:00 (25 minutes)

Presenter: DAVIES, Christine (University of Glasgow)

Session Classification: CPV in B decays

Contribution ID: **48** Type: **not specified**

b-baryon decays

Thursday 11 June 2020 13:10 (25 minutes)

Presenter: RODRIGUES, Eduardo (University of Liverpool (GB))

Session Classification: CPV in B decays

Contribution ID: **51** Type: **not specified**

Reactor neutrinos

Friday 12 June 2020 09:00 (30 minutes)

Presenter: ROSKOVEC, Bedrich (Charles University in Prague)

Session Classification: Future of flavour

Contribution ID: **52** Type: **not specified**

Future colliders

Friday 12 June 2020 10:00 (30 minutes)

Presenter: CEPEDA, Maria (CIEMAT)

Session Classification: Future of flavour

Contribution ID: **53** Type: **not specified**

DUNE/HK

Friday 12 June 2020 09:30 (30 minutes)

Presenter: Mr TANAKA, Hirohisa A. (SLAC/Stanford University)

Session Classification: Future of flavour

Contribution ID: **54** Type: **not specified**

kaon dedicated experiments after NA62&KOTO

Friday 12 June 2020 10:30 (30 minutes)

Presenters: LAZZERONI, Cristina (University of Birmingham (GB)); MOULSON, Matthew (INFN e Laboratori Nazionali di Frascati (IT))

Session Classification: Future of flavour

Contribution ID: **55** Type: **not specified**

LHCb upgrade(s)

Friday 12 June 2020 11:30 (30 minutes)

Presenter: TEUBERT, Frederic (CERN)

Session Classification: Future of flavour

Contribution ID: **56** Type: **not specified**

Belle II status and prospects

Friday 12 June 2020 12:00 (30 minutes)

Presenter: URQUIJO, Phillip (University of Melbourne (AU))

Session Classification: Future of flavour

Contribution ID: **57** Type: **not specified**

neutron EDM: latest results and prospects

Friday 12 June 2020 12:30 (30 minutes)

Presenter: AYRES, Nicholas (ETH Zurich)

Session Classification: Future of flavour

Contribution ID: **58** Type: **not specified**

Future of flavour

Friday 12 June 2020 13:00 (30 minutes)

Presenter: LENZ, Alexander (IPPP, Durham)

Session Classification: Future of flavour

Contribution ID: **60** Type: **not specified**

Results from NOVA and T2K

Tuesday 9 June 2020 17:30 (30 minutes)

Presenter: PICKERING, Luke (Michigan State University)

Session Classification: Neutrinos

Contribution ID: **61** Type: **not specified**

Status of current neutrino paradigm

Wednesday 10 June 2020 18:45 (30 minutes)

Presenter: ESTEBAN, Ivan (Universitat de Barcelona)

Session Classification: Neutrinos

Contribution ID: **62** Type: **not specified**

Experimental status on neutrinoless double-beta decays

Tuesday 9 June 2020 18:30 (25 minutes)

Presenter: RENNER, Josh (Univ. of Valencia and CSIC (ES))

Session Classification: Neutrinos

Contribution ID: **63** Type: **not specified**

Sterile neutrinos

Wednesday 10 June 2020 18:15 (30 minutes)

Presenter: Dr GARIAZZO, Stefano (IFIC-CSIC/University of Valencia)

Session Classification: Neutrinos

Contribution ID: **64** Type: **not specified**

ICECUBE and Km3NET

Tuesday 9 June 2020 18:00 (30 minutes)

Presenter: Prof. WILLIAMS, Dawn

Session Classification: Neutrinos

Contribution ID: **65** Type: **not specified**

Theoretical status of flavour production at hadron colliders

Session Classification: Flavour production

Contribution ID: **66** Type: **not specified**

Experimental status of flavour production at hadron colliders

Wednesday 10 June 2020 10:15 (30 minutes)

Presenter: ZHANG, Yanxi (CERN)

Session Classification: Flavour production

Contribution ID: **67** Type: **not specified**

Rare tau decays

Monday 8 June 2020 09:45 (30 minutes)

Presenter: JIN, Yifan (INFN-Trieste)

Session Classification: Charged Leptons

Contribution ID: **71** Type: **Talk for parallel**

Hadronic charm meson decays at BESIII

BESIII has collected data samples corresponding to luminosities of 2.93 fb-1 and 3.19 fb-1 at center-of-mass energies of 3.773 and 4.178 GeV, respectively. The data set collected at 3.773 GeV contains quantum-correlated D0D0bar pairs that allow access to the phase differences between amplitudes. We report the measurements of strong phase differences in D0 decays, including KS/L pi+ pi-, which can reduce the gamma/phi3 measurement systematic uncertainty at LHCb and Belle II. In addition, we report the measurements of the absolute branching fractions and the amplitude analyses of D+, D0, and Ds decays.

Author: ZHANG, Jingzhi (IHEP)

Presenter: ZHANG, Jingzhi (IHEP)

Contribution ID: **72** Type: **Talk for parallel**

Light meson decays at BESIII

Due to the high production rate of light mesons in J/psi decays, the hight statistics sample of 1.3 billion Jpsi events provide an ideal lab to investigate the decay dynamics of light mesons, in particular for eta and etaprime. Recently the BESIII experiment made significant progresses in eta and prime decays, including their hadronic and rare decays, which will be reported in this talk

Author: ZHANG, Jingzhi (IHEP)

Presenter: ZHANG, Jingzhi (IHEP)

Contribution ID: **73** Type: **Talk for parallel**

XYZ at BESIII

From 2011, BESIII has taken about 20 fbˆ-1 data samples at center of mass energies from 3.8 to 4.6 GeV, containing 21 energy points with luminosity larger than 400 pbˆ-1. This makes the study of vector states Y, charged states Z, X states, as well as the connections between them through transition processes possible. Using these data samples, new information about X(3872) decays, Y states from open-charm final states, hidden-charm final states, and light hadron final states will be presented.

Author: ZHANG, Jingzhi (IHEP)

Presenter: ZHANG, Jingzhi (IHEP)

Contribution ID: **74** Type: **Talk for parallel**

PROBING OF MULTIQUARKS STRUCTURE IN HADRON AND HEAVY ION COLLISIONS

The spectroscopy of charmonium-like mesons with masses above the 2_mD open charm threshold has been full of surprises and remains poorly understood [1]. The currently most compelling theoretical descriptions of the mysterious XYZ mesons attribute them to hybrid structure with a tightly bound cc\bar diquark [2] or cq(cq)\bar tetraquark core [3 - 5] that strongly couples to S-wave DD\bar molecular like structures. In this picture, the production of a XYZ states in high energy hadron collisions and its decays into light hadron plus charmonum final states proceed via the core component of the meson, while decays to pairs of open-charmed mesons proceed via the DD\bar component.

These ideas have been applied with some success to the XYZ states [2], where a detailed calculation finds a cc\bar core component that is only above 5% of the time with the DD\bar component (mostly D0D0\bar) accounting for the rest. In this picture these states are compose of three rather disparate components: a small charmonium-like cc\bar core with r_rms < 1 fm, a larger D+D- component with r_rms = ħ/(2μ+B+)ˆ1/2 ≈ 1.5 fm and a dominant component D0D0 with a huge, r_rms = ħ/(2μ0B0)ˆ1/2 > 9 fm spatial extent. Here μ+(μ0) and B+(B0) denote the reduced mass for the D+D- (D0D0\bar) system and the relevant binding energy |m_D + m_D - M_X(3872)| (B+ = 8.2 MeV, B0 < 0.3 MeV). The different amplitudes and spatial distributions of the D+D- and D0D0 components ensure that the X(3872) is not an isospin eigenstate. Instead it is mostly I = 0, but has a significant (˜ 25 %) I = 1 component.

In the hybrid scheme, XYZ mesons are produced in high energy proton-nuclei collisions via its compact (r_rms < 1 fm) charmonium-like structure and this rapidity mixes in a time (t ˜ ħ/δM) into a huge and fragile, mostly D0D0, molecular-like structure. δM is the difference between the XYZ meson mass and that of the nearest cc\bar mass pole core state, which we take to be that of the χc1(2P) pure charmonium state which is expected to lie about 20 ˜ 30 MeV above M_X(3872) [6, 7]. In this case, the mixing time, cτ_mix 5 ˜ 10 fm, is much shorter than the lifetime of X(3872) which is cτ_X(3872) > 150 fm [8].

The experiments with proton-proton and proton-nuclei collisions with √S_pN up to 26 Gev and luminosity up to 10ˆ32 cmˆ-2sˆ-1 planned at NICA are well suited to test this picture for the X(3872) and other XYZ mesons. In near threshold production experiments in the √S_pN ≈ 8 GeV energy range, XYZ mesons can be produced with typical kinetic energies of a few hundred MeV (i.e. with γβ ≈ 0.3). In the case of X(3872), its decay length will be greater than 50 fm while the distance scale for the cc\bar ⟶ D0D*0 transition would be 2 ˜ 3 fm. Since the survival probability of an r_rms ˜ 9 fm “molecular”inside nuclear matter should be very small, XYZ meson production on a nuclear target with r_rms ˜ 5 fm or more (A ˜ 60 or larger) should be strongly quenched. Thus, if the hybrid picture is correct, the atomic number de-pendence of XYZ production at fixed √S_pN should have a dramatically different behavior than that of the ψ’, which is long lived compact charmonium state.

The current experimental status of XYZ mesons together with hidden charm tetraquark can-didates and present simulations what we might expect from A-dependence of XYZ mesons in proton-proton and proton-nuclei collisions are summarized.

References

[1] S. Olsen, Front. Phys. 10 101401 (2015)

[2] S. Takeuchi, K. Shimizu, M. Takizawa, Progr. Theor. Exp. Phys. 2015, 079203 (2015)

[3] A. Esposito, A. Pilloni, A.D. Poloza, arXiv:1603.07667[hep-ph]

[4] M.Y.Barabanov, A.S.Vodopyanov, S.L.Olsen, A.I.Zinchenko, Phys. Atom. Nuc. 79, 1, 126 (2016)
[5] M.Yu. Barabanov, A.S. Vodopyanov, S.L. Olsen, Phys. Scripta 166 014019 (2015)
[6] N. Isgur, Phys. Rev. D 32, 189 (1985)
[7] K. Olive et al. (PDG), Chin. Phys. C 38, 090001 (2014)
[8] The width of X(3872) is experimentally constrained to be Γ X(3872) < 1.2 (90% CL) in S.-K. Choi et al (Belle Collaboration), Phys. Rev. D 84, 052004 (2011)

Author: Prof. BARABANOV, Mikhail (JINR)

Co-authors: Prof. VODOPYANOV, Alexander (JINR); Prof. OLSEN, Stephen (UCAS)

Presenter: Prof. BARABANOV, Mikhail (JINR)

Contribution ID: **75** Type: **not specified**

Latest reults in neutron EDM at PSI

Contribution ID: **76** Type: **not specified**

Nuclear PDFs: status and prospects

Wednesday 10 June 2020 15:30 (24 minutes)

Presenter: ARMESTO PEREZ, Nestor (Universidade de Santiago de Compostela (ES))

Session Classification: Parallel session

Contribution ID: **77** Type: **not specified**

fix target and HI at LHCb

Wednesday 10 June 2020 15:54 (22 minutes)

Presenter: MARANGOTTO, Daniele (Università degli Studi e INFN Milano (IT))

Session Classification: Parallel session

Contribution ID: **78** Type: **not specified**

p-A experimental overview

Wednesday 10 June 2020 16:16 (22 minutes)

Presenter: HADJIDAKIS, Cynthia (Université Paris-Saclay (FR))

Session Classification: Parallel session

Contribution ID: **79** Type: **not specified**

HI results from the LHC

Wednesday 10 June 2020 16:38 (22 minutes)

Presenter: FRAGIACOMO, Enrico (Universita e INFN Trieste (IT))

Session Classification: Parallel session

Contribution ID: **80** Type: **Talk for parallel**

Probing NP in four-fermion interactions with dipole processes

Four-fermion effective interactions have played a major role in the formulation of the Standard Model (SM) of particle physics. Nowadays, they are of fundamental importance in establishing the viability of extensions of the SM, since this category of operators is sensitive to the flavor structure of New Physics (NP), including new sources of CP violation. Following the renormalization of four-fermion operators, they mix into dipole operators, thus inducing powerful constraints on their effective coupling constants (i.e., their Wilson coefficients). For many four-fermion operators, such mixing is absent at one-loop. Here, I would like to present the calculation of their leading-order two-loop mixing into dipoles, and the resulting phenomenological bounds on generic NP models that generate four-fermion effective interactions at energies much above the ElectroWeak scale.

Author: VALE SILVA, Luiz

Co-authors: JAGER, Sebastian (Unknown); Ms LESLIE, Kirsten (University of Sussex)

Presenter: VALE SILVA, Luiz

Contribution ID: **81** Type: **not specified**

Bs->JPsi Phi potential at CEPC

Thursday 11 June 2020 09:30 (15 minutes)

Presenter: ZHAO, Mingrui (China Institute of Atomic Energy (CN))

Session Classification: Parallel session

Contribution ID: **82** Type: **not specified**

Comments on the LHCb angular analysis of B→K* μ+μ−

Wednesday 10 June 2020 15:30 (15 minutes)

Presenter: NESHATPOUR, Siavash (Université Lyon 1 - IP2I)

Session Classification: Parallel session

Contribution ID: **84** Type: **Talk for parallel**

Recent results from charged-current semileptonic B decays at LHCb

Recent results from semileptonic b->clnu and b->ulnu decays studied at 7 TeV, 8 TeV and 13 TeV centre-of-mass energy with the LHCb detector will be reported. These include the measurement of hadronic form-factors in the Bs->Ds*munu decay and the first observation of the B->ppbarmunu decay.

Authors: RICCIARDI, Stefania (Science and Technology Facilities Council STFC (GB)); GERSTEL, Dawid Piotr (Aix Marseille Univ, CNRS/IN2P3, CPPM, Marseille, France)

Presenter: GERSTEL, Dawid Piotr (Aix Marseille Univ, CNRS/IN2P3, CPPM, Marseille, France)

Contribution ID: **85** Type: **not specified**

Enhanced production of multi-strange hadrons in high-multiplicity proton-proton collisions

Wednesday 10 June 2020 10:45 (25 minutes)

Presenter: DELSANTO, Silvia (Universita e INFN Torino (IT))

Session Classification: Flavour production

Contribution ID: **86** Type: **Talk for parallel**

Recent Searches for Hidden-Sector Particles with BABAR

Many models of dark matter and hidden sectors predict new particles with masses below the electroweak scale. Low-energy electron-positron colliders such as BABAR are ideally suited to discover these hidden-sector particles. We present several recent BABAR searches for low-mass hidden- sector particles, including new searches for prompt and long-lived leptonically decaying hidden scalars produced in association with tau leptons. This search is sensitive to viable models that could account for the muon $g-2$ excess. We also present results a search for dark muonic forces, and for invisible particles produced in six-quark final states. These examples show the importance of B-factories in constraining and discovering new hidden-sector physics beyond the Standard Model.

Author: ANULLI, Fabio (Sapienza Universita e INFN, Roma I (IT))

Presenter: ANULLI, Fabio (Sapienza Universita e INFN, Roma I (IT))

Contribution ID: **87** Type: **Talk for parallel**

Rare and forbidden decays of D^0 meson.

We report the observation of the rare charm decay $D^0 \to K^-\pi^+e^+e^-$, a search for nine lepton-number-violating and three lepton-flavor-violating neutral charm decays of the type $D^0 \to h^-h^{'-}\ell^+\ell^{'+}$, and $D^0 \to h^-h^{'+}\ell^+\ell^{'-}$, and a search for seven lepton-number-violating decays of the type $D^0 \to X^0e^\pm\mu^\mp$, where h and h' represent a K or π meson, ℓ and ℓ' an electron or muon, and X^0 a π^0, K^0_S, K^{*0}, ρ^0, ϕ, ω, or η meson. The results are based on 468 fb^{-1} of e^+e^- collision data collected at or close to the $\Upsilon(4S)$ resonance with the BaBar detector at the SLAC National Accelerator Laboratory.

Author: ANULLI, Fabio (Sapienza Universita e INFN, Roma I (IT))

Presenter: ANULLI, Fabio (Sapienza Universita e INFN, Roma I (IT))

Contribution ID: **88** Type: **Talk for parallel**

$\tau - \mu$ lepton flavor universality in $\Upsilon(3S)$ decays at the $BABAR$ experiment

We report on a precision measurement of the ratio $R_{\tau\mu} = BF(\Upsilon(3S) \to \tau^+\tau^-)/BF(\Upsilon(3S) \to \mu^+\mu^-)$ using data collected with the BABAR detector at the SLAC PEP-II e^+e^- collider. The measurement is based on a 28 fb^-1 data sample collected at a center-of-mass energy of 10.355 GeV/c^2 which corresponds to a sample 122 million $\Upsilon(3S)$ mesons. In order to estimate backgrounds from direct dilepton production we use 2.6 fb^-1 of data collected 30 MeV below the $\Upsilon(3S)$ resonance mass and 86 fb^-1 of data collected near the $\Upsilon(4S)$ resonance. The ratio is measured to $R_{\tau\mu} = 0.9662 \pm 0.0084 \pm 0.0135$ and is in agreement with the Standard Model prediction. Its uncertainty is almost order of magnitude smaller than the only previous measurement reported by the CLEO collaboration.

Author: ANULLI, Fabio (Sapienza Universita e INFN, Roma I (IT))

Presenter: ANULLI, Fabio (Sapienza Universita e INFN, Roma I (IT))

Contribution ID: **89** Type: **Talk for parallel**

Study of resonant-states production in e^+e^- annihilation in the energy region around 2.2 GeV

Two vector resonances with a mass near 2.2 GeV/c^2 are presently known: the $\phi(2170)$ observed in several production processes, but seen to decay only to $\phi(2170) \to \phi(1020)f_0(980)$, and the not well established $\rho(2150)$. Recently the BES-III experiment observed a clear interference pattern in the same energy region in $e^+e^- \to K^+K^-$, interpreted as a resonance with a mass of 2239 GeV and a width of 0.14 GeV. To shed light on the resonant states in this energy region we measure the reaction $e^+e^- \to K_SK_L$ with data collected with the $BABAR$ detector, and analyse these data in conjunction with published BES-III data on $e^+e^- \to K^+K^-$ and $BABAR$ data on $e^+e^- \to K^+K^-$, $\pi^+\pi^-$, $\pi^+\pi^-\eta$, $\pi^+\pi^-\omega$. This study supports the existence of an isovector resonance $\rho(2230)$ with mass $M = 2232 \pm 8 \pm 9$ MeV/c^2 and width $\Gamma = 133 \pm 14 \pm 4$ MeV/c^2, consistent with the resonance observed by BES-III.

Author: ANULLI, Fabio (Sapienza Universita e INFN, Roma I (IT))

Presenter: ANULLI, Fabio (Sapienza Universita e INFN, Roma I (IT))

Contribution ID: **90** Type: **Talk for parallel**

SEARCH FOR EXOTIC DECAYS WITH NA62

The NA62 experiment at the CERN SPS is designed to measure the branching ratio of the K+⟶π+νν decay, one of the best candidates to reveal indirect effects of new physics at the highest mass scales. NA62 took data in 2016-2018. The high-intensity fixed-target setup and detector performance make the NA62 experiment particularly suited for searches of new physics from faintly interacting particles in the MeV—GeV mass range: heavy-neutral leptons, axion-like particles, and others. The results from the analysis of data taken with dedicated setup and triggers developed to this purpose will be highlighted.

Authors: CENCI, Patrizia (INFN Perugia (IT)); OTHER AUTHORS

Presenter: OTHER AUTHORS

Contribution ID: **91** Type: **Talk for parallel**

The search for proton and deuteron Electric Dipole Moments using storage rings

The Standard Model (SM) of Particle Physics is not capable to account for the apparent matter-antimatter asymmetry of our Universe. Physics beyond the SM is required and is either probed by employing highest energies (e.g., at LHC), or by striving for ultimate precision and sensitivity (e.g., in the search for electric dipole moments). Permanent electric dipole moments (EDMs) of particles violate both time reversal (T) and parity (P) invariance, and are via the CPT-theorem also CP-violating. Finding a non-zero EDM would be a strong indication for physics beyond the SM, and pushing upper limits further provides crucial tests for any corresponding theoretical model. Up to now, EDM searches focused on neutral systems (neutrons, atoms, and molecules). Storage rings, however, offer the possibility to measure EDMs of charged particles by observing the influence of the EDM on the spin motion in the ring. Direct searches of proton and deuteron EDMs bear the potential to reach sensitivities beyond 1E-29 e cm.

Since the Cooler Synchrotron COSY at the Forschungszentrum Jülich provides polarized protons and deuterons up to momenta of 3.7 GeV/c, it constitutes an ideal testing ground and starting point for such an experimental program. The collaboration is presently aiming at a first direct (precursor) measurement of the deuteron EDM in COSY, using an RF Wien filter that was specifically designed for that purpose. Beyond that, the technical design of a prototype EDM storage ring constitutes the next major milestone of the JEDI research program, which shall be addressed together with CERN in the framework of a newly formed CPEDM collaboration (Charged Particle Electric Dipole Moment collaboration).

The talk will present the JEDI plans for the measurement of proton and deuteron EDMs, and discuss the various technical developments, and also show recent results.
This work is supported by an ERC Advanced-Grant of the European Union (srEDM, No. 694340).

Author: NASS, Alexander (Forschungszentrum Jülich GmbH)

Presenter: NASS, Alexander (Forschungszentrum Jülich GmbH)

Contribution ID: **92** Type: **Talk for parallel**

The KLOE-2 Experiment at DAPHNE

The KLOE-2 experiment at DAΦNE, the LNF Frascati ϕ-factory, has completed its data taking in 2018, collecting 5.5 fb-1 of integrated luminosity. The goal of KLOE-2 is to extend and expand the physics program of KLOE. The original 'general purpose' central detector, made by a large drift chamber - 4 m in diameter - surrounded by a lead/scintillating fibre electromagnetic calorimeter, has been upgraded with new sub-detectors, among which there is a cilindrical GEM detector to improve vertex reconstruction in the interaction region and two taggers to identify leptons diffused at small angles in gamma-gamma interactions.

The 8 fb-1 acquired with KLOE/KLOE-2 constitute a unique dataset of 24 billions ϕ mesons produced. KLOE data analysis is still providing relevant results on K mesons' properties, test of discrete symmetries, unitarity test of the CKM matrix , light meson properties, η decays, search for dark forces, hadronic cross section and its contribution to the muon anomalous magnetic moment. We will present the status of recent results and analysis in progress, as well as the KLOE-2 physics program.

Author: GIOVANNELLA, Simona (INFN)

Presenter: GIOVANNELLA, Simona (INFN)

Contribution ID: **93** Type: **not specified**

τ–μ lepton flavor universality in Υ(3S) decays at the BABAR experiment

Monday 8 June 2020 17:15 (15 minutes)

Presenter: SIBIDANOV, Alexei (University of Victoria)

Session Classification: Parallel session

Contribution ID: **94** Type: **not specified**

The search for proton and deuteron Electric Dipole Moments using storage rings

Thursday 11 June 2020 09:45 (15 minutes)

Presenter: NASS, Alexander (Forschungszentrum Jülich GmbH)

Session Classification: Parallel session

Contribution ID: **95** Type: **not specified**

Recent results from charged-current semileptonic B decays at LHCb

Wednesday 10 June 2020 16:45 (15 minutes)

Presenter: GERSTEL, Dawid Piotr (Aix Marseille Univ, CNRS/IN2P3, CPPM, Marseille, France)

Session Classification: Parallel session

Contribution ID: **96** Type: **not specified**

Light meson decays at BES III

Wednesday 10 June 2020 09:00 (15 minutes)

Presenter: Dr YAN, Zhang

Session Classification: Parallel session

Contribution ID: **97** Type: **not specified**

The KLOE-2 Experiment at DAPHNE

Wednesday 10 June 2020 09:15 (15 minutes)

Presenter: PEREZ DEL RIO, Elena (INFN - National Institute for Nuclear Physics)

Session Classification: Parallel session

Contribution ID: **98** Type: **not specified**

Rare and forbidden decays of D0 meson

Wednesday 10 June 2020 09:30 (15 minutes)

Presenter: EIGEN, Gerald (University of Bergen (NO))

Session Classification: Parallel session

Contribution ID: **99** Type: **not specified**

Hadronic charm meson decays at BESIII

Wednesday 10 June 2020 09:45 (15 minutes)

Presenter: WANG, Meng

Session Classification: Parallel session

Contribution ID: **100** Type: **not specified**

Study of resonant-states production in e+e− annihilation in the energy region around 2.2 GeV

Session Classification: Parallel session

Contribution ID: **101** Type: **not specified**

Probing of multiquark structure in hadron and heavy ion collisions

Thursday 11 June 2020 09:30 (15 minutes)

Presenter: BARABANOV, Mikhail (JINR)

Session Classification: Parallel session

Contribution ID: **102** Type: **not specified**

XYZ at BESIII

Thursday 11 June 2020 09:45 (15 minutes)

Presenter: Dr ZHENG, Yi (Peking University)

Session Classification: Parallel session

Contribution ID: **103** Type: **not specified**

Study of resonant-states production in e+e– annihilation in the energy region around 2.2 GeV

Wednesday 10 June 2020 10:00 (15 minutes)

Presenter: Mr KOZYREV, Evgeny (Budker Institute of Nuclear Physics)

Session Classification: Parallel session

Contribution ID: **104** Type: **not specified**

Probing NP in four-fermion interactions with dipole processes

Wednesday 10 June 2020 16:15 (15 minutes)

Presenter: VALE SILVA, Luiz

Session Classification: Parallel session

Contribution ID: **105** Type: **not specified**

Search for Exotic decays in NA62

Wednesday 10 June 2020 09:15 (15 minutes)

Presenter: KLEIMENOVA, Alina (Universite Catholique de Louvain (UCL) (BE))

Session Classification: Parallel session

Contribution ID: **106** Type: **not specified**

Recent Searches for Hidden-Sector Particles with BABAR

Wednesday 10 June 2020 09:00 (15 minutes)

Presenter: ECHENARD, Bertrand (California Institute of Technology)

Session Classification: Parallel session

Contribution ID: **107** Type: **not specified**

Baryogenesis and Dark Matter from B Mesons

Wednesday 10 June 2020 09:30 (15 minutes)

Presenter: ESCUDERO, Miguel (King's College London)

Session Classification: Parallel session

Contribution ID: **108** Type: **not specified**

Recent CMS results of a search for τ->3μ decays

Monday 8 June 2020 17:00 (15 minutes)

Presenter: MITSELMAKHER, Guenakh (University of Florida (US))

Session Classification: Parallel session

Contribution ID: **109** Type: **not specified**

Finding light DM with Deep Inelastic Scattering at the LHC

Wednesday 10 June 2020 09:45 (15 minutes)

Presenter: FOLDENAUER, Patrick

Session Classification: Parallel session

Contribution ID: **110** Type: **not specified**

Searching for light scalars in rare B-decays into six muons

Wednesday 10 June 2020 10:00 (15 minutes)

Presenter: RAMOS, Maria (LIP)

Session Classification: Parallel session

Contribution ID: **111** Type: **not specified**

TauFV

Thursday 11 June 2020 10:30 (20 minutes)

Presenter: WILKINSON, Guy (University of Oxford (GB))

Session Classification: Parallel session

Contribution ID: **112** Type: **not specified**

Branching Fraction measurement of B0 -> D0D0barKpi at LHCb

Monday 8 June 2020 16:45 (15 minutes)

Presenter: BHASIN, Srishti (University of Bristol (GB))

Session Classification: Parallel session

Contribution ID: **113** Type: **not specified**

Measurement of the weak mixing phase phi_s through time-dependent CP violation in Bs—>J/ψΦ decay in ATLAS

Monday 8 June 2020 17:15 (15 minutes)

Presenter: MESHKOV, Oleg

Session Classification: Parallel session

Contribution ID: **114** Type: **not specified**

Search for CP violation in Higgs boson interactions at the ATLAS experiment

Thursday 11 June 2020 10:45 (15 minutes)

Presenter: ORDEK, Serhat (Georg August Universitaet Goettingen (DE))

Session Classification: Parallel session

Contribution ID: **115** Type: **not specified**

Recent highlights of top-quark physics with the ATLAS detector

Thursday 11 June 2020 10:00 (15 minutes)

Presenter: RUSTIGE, Lennart (Université Clermont Auvergne (FR))

Session Classification: Parallel session

Contribution ID: **116** Type: **not specified**

Searching for leptoquarks with the ATLAS detector

Wednesday 10 June 2020 16:30 (15 minutes)

Presenter: HERR, Holger Arnold (Johannes Gutenberg Universitaet Mainz (DE))

Session Classification: Parallel session

Contribution ID: **117** Type: **not specified**

Higgs boson couplings to bottom quarks at the ATLAS experiment

Thursday 11 June 2020 10:15 (15 minutes)

Presenter: GIULIA , di Gregorio

Session Classification: Parallel session

Contribution ID: **118** Type: **not specified**

ATLAS results on Heavy Flavour production and decay (including rare processes)

Wednesday 10 June 2020 16:00 (15 minutes)

Presenter: IENGO, Paolo (CERN)

Session Classification: Parallel session

Contribution ID: **119** Type: **not specified**

CKM matrix at Belle II

Monday 8 June 2020 17:30 (15 minutes)

Presenter: MEROLA, Mario (University of Napoli Federico II and INFN - National Institute for Nuclear Physics)

Session Classification: Parallel session

Contribution ID: **120** Type: **not specified**

Belle II highlights on first B Physics results

Monday 8 June 2020 17:00 (15 minutes)

Presenter: Dr ABUDINÉN, Fernando (INFN Sezione di Trieste)

Session Classification: Parallel session

Contribution ID: **121** Type: **not specified**

Charm and charmonium at Belle II

Monday 8 June 2020 16:45 (15 minutes)

Presenter: BRIERE, Roy (Carnegie Mellon University)

Session Classification: Parallel session

Contribution ID: **122** Type: **not specified**

τ physics results and prospects at Belle II

Monday 8 June 2020 17:30 (15 minutes)

Presenter: HERNANDEZ VILLANUEVA, Michel (University of Mississippi)

Session Classification: Parallel session

Contribution ID: **123** Type: **not specified**

“Results and Prospects of Radiative and Electroweak Penguin Decays at Belle II

Wednesday 10 June 2020 15:45 (15 minutes)

Presenter: HALDER, Soumen (Tata Institute of Fundamental Research)

Session Classification: Parallel session

Contribution ID: **124** Type: **not specified**

Status and Future development of the Full Event Interpretation Algorithm at Belle II

Thursday 11 June 2020 10:00 (15 minutes)

Presenter: STEFKOVA, Slavomira (DESY)

Session Classification: Parallel session

Contribution ID: **125** Type: **not specified**

CMS Measurement of prompt open charm production cross sections in proton-proton collisions at 13 TeV

Thursday 11 June 2020 10:30 (15 minutes)

Presenter: MARIANI, Valentina (Universita e INFN, Perugia (IT))

Session Classification: Parallel session

Contribution ID: **126** Type: **not specified**

Flavour on a forward detector at 50 and 100 TeV

Thursday 11 June 2020 10:15 (15 minutes)

Presenter: PROUVE, Claire (Universidade de Santiago de Compostela (ES))

Session Classification: Parallel session

Contribution ID: **127** Type: **not specified**

FPCP International Advisory Committee meeting

Friday 12 June 2020 07:30 (30 minutes)

Contribution ID: **128** Type: **not specified**

FPCP 2020

Monday 8 June 2020 09:35 (10 minutes)

Presenter: MARTINEZ SANTOS, Diego (Universidade de Santiago de Compostela (ES))

Session Classification: Wellcome and introduction

Contribution ID: **129** Type: **not specified**

FPCP 2022 site selection

Friday 12 June 2020 13:40 (20 minutes)

Presenter: IIJIMA, Toru (Nagoya University)