Fifth workshop on ”Perceiving the Emergence of Hadron Mass through AMBER@CERN” (EHM2021/9)

Wednesday, 21 April 2021 - Friday, 30 April 2021

Book of Abstracts
Contents

Introductory talk .......................................................... 1
Probing EHM with AMBER ................................................. 1
Charged proton-radius measurement ................................. 1
Antiproton cross-section measurements for Dark Matter search .................................................. 1
Probing the pion’s parton structure at AMBER . ...................... 1
Probing the kaon’s parton structure at AMBER Phase-2 .......... 1
Measuring excitation spectra in K pi pi final states with AMBER Phase-2 ....................................... 1
Measuring the Primakoff reaction and F_{K2pi} with AMBER phase-II ............................................ 2
Can AMBER Phase-2 access the charge radius of pion or/and kaon? .................................................. 2
Can AMBER Phase-2 access Moments of pion/kaon Distribution Amplitudes in Diffractive Scattering? . 2
Lattice QCD for AMBER ...................................................... 2
Meson DFs from Lattice QCD ................................................. 2
Pion DAs in AMBER .......................................................... 2
EHM via Meson GPDs ......................................................... 3
Basic EHM from Lattice QCD ............................................. 3
Pion structure as a problem in Minkowski space ...................... 3
Basis light-front quantisation ................................ ............. 3
Discussion ........................................................................... 3
NNPDFs for meson structure ............................................. 3
Accessing pion’s large-x gluon by fixed-target charmonium production ........................................... 3
EHM via meson light-front wave functions - Part 1 .......... 4
EHM via meson light-front wave functions - Part 2 .......... 4
High-energy factorization for DY with new TMD (unintegrated) PDFs ............................................. 4
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discussion</td>
<td>4</td>
</tr>
<tr>
<td>EHM and the spectrum of light mesons</td>
<td>4</td>
</tr>
<tr>
<td>EHM as revealed by the spectra of baryons with heavy quarks</td>
<td>4</td>
</tr>
<tr>
<td>Synergies with EHM at Jlab</td>
<td>4</td>
</tr>
<tr>
<td>Model independent extraction of hadron radii</td>
<td>5</td>
</tr>
<tr>
<td>Round-table discussion</td>
<td>5</td>
</tr>
</tbody>
</table>
Day I - Introduction

Introductory talk

Corresponding Author: oleg.denisov@cern.ch

Day I - Introduction

Probing EHM with AMBER

Corresponding Author: cdroberts@nju.edu.cn

Approved measurements

Charged proton-radius measurement

Corresponding Author: alexey.dzyuba@cern.ch

Approved measurements

Antiproton cross-section measurements for Dark Matter search

Corresponding Author: paolo.zuccon@cern.ch

Approved measurements

Probing the pion’s parton structure at AMBER

Corresponding Author: stephane.platchkov@cern.ch

Envisaged measurements

Probing the kaon’s parton structure at AMBER Phase-2

Corresponding Author: vincent.andrieux@cern.ch

Envisaged measurements

Measuring excitacion spectra in K pi pi final states with AMBER Phase-2
Envisaged measurements / 14

Measuring the Primakoff reaction and \( F_{\{K2pi}\} \) with AMBER phase-II

Corresponding Author: andrii.maltsev@cern.ch

Day I / 15

Can AMBER Phase-2 access the charge radius of pion or/and kaon?

Corresponding Author: jan@tum.de

Day I / 16

Can AMBER Phase-2 access Moments of pion/kaon Distribution Amplitudes in Diffractive Scattering?

Corresponding Author: oleg.denisov@cern.ch

Day II / 17

Lattice QCD for AMBER

Corresponding Author: dgr@jlab.org

Day II / 18

Meson DFs from Lattice QCD

Corresponding Author: nkarthik@bnl.gov

Day III / 19

Pion DAs in AMBER

Corresponding Author: stefanis@tp2.ruhr-uni-bochum.de
Day II / 20

**EHM via Meson GPDs**

**Corresponding Author:** josemanuel.morgado@dci.uhu.es

Day II - / 21

**Basic EHM from Lattice QCD**

**Corresponding Author:** jonivar@thphys.nuim.ie

Day II - / 22

**Pion structure as a problem in Minkowski space**

**Corresponding Author:** ydrefors@kth.se

Day II - / 23

**Basis light-front quantisation**

**Corresponding Author:** xbzhao@impcas.ac.cn

Day II - / 24

**Discussion**

Day III / 25

**NNPDFs for meson structure**

**Corresponding Author:** j.rojo@vu.nl

Day III / 27

**Accessing pion’s large-x gluon by fixed-target charmonium production**

**Corresponding Author:** wen-chen.chang@cern.ch
Day III / 28

**EHM via meson light-front wave functions - Part 1**

**Corresponding Author:** khepani@gmail.com

Day III / 29

**EHM via meson light-front wave functions - Part 2**

**Corresponding Author:** jose.rodriguez@dfaie.uhu.es

Day II / 30

**High-energy factorization for DY with new TMD (unintegrated) PDFs**

**Corresponding Author:** nefedovma@gmail.com

Day III / 31

**Discussion**

Day IV / 32

**EHM and the spectrum of light mesons**

**Corresponding Author:** lei.chiong@gmail.com

Day IV / 33

**EHM as revealed by the spectra of baryons with heavy quarks**

**Corresponding Author:** jsegovia@upo.es

Day IV / 34

**Synergies with EHM at Jlab**

**Corresponding Author:** mokeev@jlab.org
Day III / 35

**Model independent extraction of hadron radii**

*Corresponding Author:* binosi@ectstar.eu

Day IV - Round table / 36

**Round-table discussion**

Wolf-Dieter Nowak / Craig Roberts
Stephane Platchkov
Vincent Andrieux
Andrii Maltsev
Boris Grube
Jan Friedrich
Oleg Denisov
...
and all other participants