Activities of Korean Physics Community for EIC & APCTP

Yongseok Oh (Kyungpook National University)

APCTP Workshop on the Physics of Electron Ion Collider, Incheon, Nov. 2 - 4, 2022

- Asia Pacific Center for Theoretical Physics (APCTP)
- Efforts of Korean Community for EIC Physics and Activities
- Outlook

Asia Pacific Center for Theoretical Physics (APCTP)







Members

Enter Here



17 Member countries34 Partnership Institutions

Member Institutes

Australia

MATRIX AIP (Australian Institute of Physics)



Japan

YITP (Yukawa Institute for Theoretical Physics) ISSP (The Institute for Solid State Physics) RIKEN (Rikagaku Kenkyujo) RCNP (Research Center for Nuclear Physics) Research Center for the Early Universe (RESCEU)

- A hub-institute of theoretical physics in Asia Pacific region to facilitate collaboration & exchange of scientists to provide a platform for scientists of less advanced region
- Currently, 17 member economies (entities) in the Asia Pacific regions & 34 partner institutes (including IUPAP, AAPPS, KPS, ICTP, ECT*, IOP-CAS, ISSP, IBS, etc.)
- APCTP headquarters located in Pohang (POSTECH), Republic of Korea





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APCTP Activities

- Academic Activity Hub
 - ✓ Int'l/Domestic Conference/Workshop/etc.
 - ✓ Topical Research Program (TRP) APEC TRP
 - ✓ Benjamin Lee Professorship
- In-house Research
 - ✓ Junior Research Group (JRG)
 - ✓ Young Scientist Training Program (YST) APEC YST
 - ✓ Senior Advisory Group (SAG)
- International Cooperation
 - ✓ Cooperation with APEC, AAPPS
 - ✓ Publication of the AAPPS Bulletin









Academic Activities





											to
Asia-Pacific Economic Cooperation	'12	'13	' 14	'15	'16	' 17	`18	`19	`20	21 asia pacific of theoretical pl	enter for Average
No. Of participants	2,438	3,001	2,515	2,753	3,449	2,607	2,989	3,379	3,367	6,554	3,305/ year

AAPPS Bulletin

>

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REVIEW ARTICLE

Open Access

Check for updates

Status on lattice calculations of the proton spin decomposition

Keh-Fei Liu 回

Abstract

Lattice calculations of the proton spin components is reviewed. The lattice results of the quark spin from the axial-vector current matrix element at \sim 0.3 - 0.4 is smaller than those from the constituent quark models. This is

Ma and Rho AAPPS Bulletin (2021) 31:16 https://doi.org/10.1007/s43673-021-00016-1

AAPPS Bulletin

Open Access

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REVIEW ARTICLE

Topology change, emergent symmetries and compact star matter

Yong-Liang Ma^{1,2*} D and Manngue Rho³

Abstract

Topology effects have being extensively studied and confirmed in strongly correlated condensed matter physics. In the limit of large number of colors, baryons can be regarded as topological objects—skyrmions—and the baryonic matter can be regarded as a skyrmion matter. We review in this paper the generalized effective field theory for dense compact-star matter constructed with the robust inputs obtained from the shurmion approach to dense nuclear

Sharma AAPPS Bulletin (2021) 31:13 https://doi.org/10.1007/s43673-021-00010-7

AAPPS Bulletin

Open Access

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REVIEW

Updates on the QCD phase diagram from lattice

Sayantan Sharma

Abstract

Different aspects of the phase diagram of strongly interacting matter described by quantum chromodynamics (QCD),

Liu AAPPS Bulletin (2021) 31:8 https://doi.org/10.1007/s43673-021-00007-2

Open Access

REVIEW ARTICLE

Four-quark matter—a new era of spectroscopy



Abstract

In 1964, both Gell-Mann and Zweig proposed the famous Quark Model in particle physics, which tells us hadrons are built of three quarks (baryons) or quark anti-quark pair (mesons). However, the theory of strong

Roberts AAPPS Bulletin (2021) 31:6 https://doi.org/10.1007/s43673-021-00005-4

AAPPS Bulletin

REVIEW ARTICLE

Open Access

Check for updates

On mass and matter

Craig D. Roberts^{1,2}

Abstract

The visible Universe is largely characterised by a single mass scale, namely, the proton mass, m_p . Contemporary theory suggests that m_p emerges as a consequence of gluon self-interactions, which are a defining characteristic of quantum 1.6.4.1

Lee AAPPS Bulletin (2021) 31:3 https://doi.org/10.1007/s43673-021-00003-6

AAPPS Bulletin

REVIEW ARTICLE

Vector mesons in medium

Open Access



Su Houng Lee

Abstract

After decades-long attempts to measure the mass shift and understand the origin of hadron mass, it became clear that one has to analyze hadrons with small vacuum width. Also, to identify the effect of chiral symmetry breaking, one has to start by looking at chiral partners. Such considerations inevitably points to studying K^* and K_1 in matter. The



In-House Research



• Young Scientist Training Program (YST), APEC YST: With the stimulating and active scientific environment, a variety of scientific activities and in-house researchers, the Center gives an opportunity to young promising physicists (scientists) from the Asia Pacific region to increase their research capability.

1+1 year (12 people)

• Junior Research Group (JRG): The Center collectively supports and funds outstanding mid-career physicists' inspirational ideas and their research projects. Each group leader can organize a research group and run it independently. All JRGs have successfully achieved their best results with noticeable contributions to physics community and beyond.

3+2 year (10 groups)

 Senior Advisory Group (SAG): Groups of established senior researchers provide active support for the young scientists of the Center through collaborative research activities such as mentoring, consulting, advisory sessions and lectures for innovative research outcomes. 2 year (3 groups)





Online via Zoom

Organizer

Ki-Seok Kim | POSTECH Asia Pacific Center for Theoretical Physics

apetp Colloguium

Through this colloquium, not only recent trends but also long-standing problems in theoretical physics will be discussed based on unique and fundamental perspectives, providing young scientists motivation and inspiration on theoretical physics.

Program

Date	Time	Speakers	Affiliation	Title	
September 2 nd	10:00(KST)	Edward Witten	Princeton University	An Algebra of Observables for de Sitter Space	
September 16 th	10:00(KST)	Shinsei Ryu	Princeton University	Partial transpose for quantum matter, spacetime and information	
September 23 rd	10:00(KST)	Xiao-gang Wen	Massachusetts Institute of Technology	Topological order and non-Abelian statistics	
September 29 th	tember 29 th 16:00(KST)		King's College London	Black holes, holography, and phases of Yang-Mills theory	
November 4 th	10:00(KST)	Subir Sachdev	Harvard University	Quantum statistical mechanics of strange metals and black holes	
November 11 th	10:00(KST)	Leonard Susskind	Stanford University	Aspects of de Sitter Holography	
November 18 th	10:00(KST)	Norman Yao	Harvard University	What is a time crystal?	
November 25 th	10:00(KST)	Yifan Wang	New York University	Taming Defects in Quantum Field Theory	
December 2 nd	10:00(KST) Dam Thanh Son		University of Chicago	Bosonization of Fermi liquids and coadjoint orbits	
December 9 th	10:00(KST)	Hitoshi Murayama	University of California, Berkeley	Understanding gauge theories using anomaly mediation	

Junior Research Groups

- Black Holes, Quantum Gravity and String Theory
- String Theory and QCD
- Dualities in String/M-theory and Quantum Gravity
- Observational Cosmology
- Physics Beyond the Standard Model and Its Phenomenology
- Physics of Matter at Non-Equilibrium
- Electronic Structure and Magnetism
- Non-Equilibrium Many-Body Physics
- Holography and Black Holes
- Interfaces and Defects in Strongly Coupled Matter



The APCTP is supported by the Korean Government through the Science and Technology Promotion Fund and Lottery Fund and strives to maximize social value through its various activities.



This Colloquium is endorsed by the AAPPS

Activities of Korean Community (2017~)

Schools

Nuclear Physics School (in Korea)

 Annual activity organized by the DNP of KPS under the support from APCTP since 2001

- Nuclear Physics School 2018
- June 25-29, 2018, APCTP, Pohang
- Speakers
 - Chueng-Ryong Ji (North Carolina State Univ.): Hadron Physics and QCD on the Light Front

 Charles Hyde (Old Dominion Univ.) & <u>Abhay Deshpande</u> (Stony Brook Univ.): Selective Topics in RHIC and EIC Physics

Selective Topics in RHIC and EIC Physics

DAY 1 : History of nucleon spin & EIC Concept

Lecture 1: Nucleon Spin introduction and history (Abhay Deshpande : 75 min) -> GDH, Bjorken, Ellis-Jaffe, spin sum rules, and EMC, SLAC, SMC, RHIC Spin, JLab low-Q2 Lecture 2: Introduction to sub-nuclear imaging (Charles Hyde : 75 min) --> Form Factors, from Stanford(Hofsteader) to JLab: 2D vs 3D Imaging (GPDs and TMDs)

DAY 2: The Electron Ion Collider

Lecture 3: Electron Ion Collider performance goals and design concepts (Abhay Deshpande : 50 min) Lecture 4: Interaction Region Designs and Detector Concepts (Charles Hyde : 50 min)

DAY 3: The EIC Physics Program

Lecture 5: Low-x: Longitudinal Spin , Saturation, etc. (Abhay Deshpande : 75 min) Lecture 6: QCD And Nuclear Structure: (Charles Hyde : 75 min) -> EMC Effect, Correlations, Shadowing, Gluons in nuclei, -> Experimental signatures of the QCD structure of the strong interaction

Lecture 7: Imaging at EIC:

- Part A (Charles Hyde : 30 min) : GPDs of the proton, neutron, and nuclei at EIC
- Part B (Abhay Deshpande : 30 min) : TMDs (and jets?) at EIC

Workshops

Workshop on Nucleon and Resonance Structure with Hard Exclusive Processes, IPN Orsay, France, May 29-31, 2017





Commence le 29 mai 2017 à 08:45 Finit le 31 mai 2017 à 18:15 Europe/Paris Auditorium Joliot Curie 15 Rue Georges Clemenceau, 91406 Orsay, France

2017

Exploring Hadrons with Electromagnetic Probes: Structure, Excitations, Interactions, JLAB, Nov. 2-3, 2017





Discussions on the possible international collaborations between Korea and the USA

The Nature of Hadron Mass and Quark-Gluon Confinement from JLAB Experiments in the 12-GeV Era, APCTP, Pohang, July 1-4, 2018



Sunday 7/1			develop plans and
	Session I (Convener: Y. Oh)		ocation: Newport l oblems within the
8:45 AM	Welcome and Introductory Remarks	Y. Bang (President of APCTP)	and quarks. Duali n-baryon effective theoretical appro e hadron resonance
9:00 AM	EIC and Nuclear Femtography	Jianwei Qiu (JLab)	ent and theory, e. hy with computations inside a hadron u
9:30 AM	US Electron Ion Collider and the Path Forward	Abhay Deshpande (Stonybrook Univ.)	the 12 GeV era, ar article formation, mics and impacts
10:00 AM	Hadron Physics at J-PARC	Shinya Sawada (KEK)	, ibutions from lattic
10:30 AM	Coffee Break		
10:50 AM	Parton Distributions in the Nucleon and Pion	Wally Melnitchouk (JLab)	
11:20 AM	GW Partial Wave Analyses: From Photo- to Electro- production	Igor Strakovsky (George Washington Univ.)	
11:50 AM	Constraints from Finite-Energy Sum Rules on Inclusive Electron and Virtual Compton Scattering	Astrid Nathalie Hiller Blin (Univ. Mainz)	

collaborations through which existing and foreseen News, Virginia, USA) can provide insights into the two most Standard Model; namely, the origin of hadron mass and the ty between the guark-gluon fundamental degrees of degrees of freedom will be exploited among the experts in aches to come up with the unified phenomenological es and the hard exclusive processes. It will canvass a on and measurement of the momentum and spatial ising new opportunities from semi-inclusive DIS, DVCS and nd diverse array of methods in order to expose emergent

of hadron mass generation with hadron elastic and

e- regularized QCD.



Strong QCD from Hadron Structure Experiments 2019, JLab, Nov. 4-8, 2019

Strong QCD from Hadron Structure Experiments Workshop / Programme

Wednesday 06 November 2019

Wednesday 06 November 2019

Registration - CEBAF Center - Auditorium (08:15-09:00)

Session I Convener - CEBAF Center -Auditorium (09:00-10:50) - Conveners: Prof. Gothe, Ralf

Welcome from Jefferson Laboratory - CEBAF Center -Auditorium (09:00-09:15)

- Presenters: Prof. MCKEOWN, Robert

Exploring Strong QCD in the JLab Experiments of the 12 GeV era - CEBAF Center - Auditorium (09:15-09:55)

- Presenters: Dr. BURKERT, Volker

<u>New horizons for the strong QCD theory in the 12 GeV era at JLab</u> - CEBAF Center - Auditorium (09:55-10:35)

- Presenters: Prof. QIU, Jianwei

Strong QCD from Hadron Structure Experiments

Nov. 6 - 9, 2019 Jefferson Lab Newport News, VA USA

This workshop will focus on the

properties of hadrons and nuclei, and

The goal is to explore new horizons in

their emergence from Strong QCD.

the structure of ground and excited

hadrons, 3-D femto-imaging, and

Topics:

 1-D and 3-D structure of ground/excited hadrons and atomic nuclei;

 Mass, momentum, and pressure distributions in hadrons;

 Hadron spectroscopy and new hadron states;

QCD-based frameworks for the description of hadron spectroscopy and structure;

Local Organizing Committee: VL Mokeev (Drair), Jefferson Lab D.S. Cermen, Jefferson Lab J.P. Chen, Jefferson Lab

spectroscopy.

L. Elouaschiel, Jofferson Lab

CHIO OHIO

K. Joo, University of Connecticut D.G. Richards, Jafferson Lab C.D. Roberts, Arguena National Lab



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https://www.jlab.org/conference/QCD2019

Q

Enter your search term

2nd PSQ@EIC Meeting (APCTP-CFNS Joint Meeting), Kyongju+online, Jul. 19-23, 2021

10 22 10 2021

Hybrid Format

22:10

Overview	Participant List		
Call for Abstracts	198 participants		
Timetable			
Registration	Last Name	First Name	Affiliation
Participant List	-	Sakinah	Kyungpook National University
1st Circular	Abdolmaleki	Hamed	Institute for Research in Fundamental
Remote Connection (via ZOOM)	Afanasev	Andrei	George Washington University
Organizing Committee	Al-bataineh	Ayman	Imam Abdullrahman Bin Faisal Univer
Sponsors Companion Meeting	Amar	Bineta	UCAD (Sénégal)
(APCTP Focus Program for EIC, 19-24 July 2021)	Aniol	Konrad	CSULA
1st PSQ@EIC Meeting (17-19 March, 2021)	Anson	Christopher	Creighton University
Contact	Arafat	Mohd Yasir	IIT Patna India
Cfns_contact@stonybro	Arifi	Ahmad Jafar	APCTP
Ciprian.gal@stonybrook	Arrington	John	Lawrence Berkeley National Laboratory

MONDAY, 19 JULY



	21:00	Welcome Remarks Speaker: Abhay Deshpande (Stony Brook University)	🕓 5m
		CFNS-APCTP-Welc	
	21:05	Welcome Remarks Speaker: Yunkyu Bhang (APCTP)	(§ 5m
	21:10	International relations & detector technologies Speaker: Rolf Ent (Jefferson Lab)	③20m
	21:30	International relations & accelerator technologies Speaker: Andrei Seryi (JLAB) 2ndPSQ-EIC-19-Jul	© 20m
	21:50	Towards high luminosities at low CMS in an EIC-IR Speaker: Ferdinand Willeke (BNL) Image: willeke-EIC@EICUG	© 20m
22:25		Break	③ 15m



2nd PSQ@EIC Meeting: Precision Studies on QCD at EIC

Online Asia/Seoul timezone	
	_
Overview	2nd PSQ@EIC N
Call for Abstracts	ADOTD CENS I
Timetable	AFOTF-CINS J
Registration	19-23 July, 202
📰 👻 ant List	Supported by A
ular	https://indico.bnl.go
Connection (via	ZOOM Registration
© 5m ring Committee	ftX1TT_JElNqRPi90
rs	
nion Meeting	Timezone Converter
-24 July 2021)	(2nd circular)
20m @EIC Meeting	The second DCO@E
March, 2021)	the Center for Fronti
	science requiring hig
20m contact@stonybro	of these series of m overall machine des
ian.gal@stonybrook	science highlights, d
) 20m	We invite you all to p registered participar
	The selected talks w 20 min but we also e

Meeting: Precision Studies on QCD at EIC oint Meeting (Online) 1 PCTP, CHEP@KNU, CFNS ov/e/PSQ-WS2 Link: https://zoom.us/meeting/register/tJAude2gqz0rH9Y-ZNF

r: https://savvytime.com

IC meeting, co-hosted by Asia Pacific Center for Theoretical Physics (APCTP) and iers in Nuclear Science, to be held remotely on July 19-23, 2021, will examine the gh luminosity at low to medium center of mass energies (25 to 65 GeV). The goal eetings is to motivate the study of high impact science in the context of the ign, EIC operation, and detector performance. This second meeting will focus on detector concepts, and science documentation.

participate. Registration is now open. The meeting will be online via Zoom, and all nts will receive the instruction via email. We also open Call for Abstracts. If you recent research related to the EIC science, please submit the title and abstract. vill be presented during discussion sessions. Each contributed talk will be about encourage to submit very short presentations (~ 5 slides) to initiate discussions. (Please leave a message in the call for abstracts if you have any requests.) Abstracts should be submitted before July 7, 2021 to get full consideration. Topics to be discussed in this meeting include:

APCTP Focus Program in Nuclear Physics 2021, Kyongju+online, Jul. 19-24, 2021

Companion Program to The 2nd PSQ@EIC



Opportunities with EIC

19–24 Jul 2021 Hilton Gyeongju

Enter your search term Q



2020, 2021

Light Cone 2020 - 2021: Physics of Hadrons on the Light Front, Jeju Island, Nov. 29-Dec. 4, 2021

Hybrid Format

• Registrants

- 28 countries
- 231 registrants (38 in-person, 193 by online) + 2 staff members
- Presentations: 125 in total (5 canceled from planned 130 talks)
 - Invited talks: 49
 - McCartor fellows talks: 3
 - Contributed talks: 73
 - 12 plenary sessions for 54 talks
 - 10 parallel sessions for 73 talks





Light Cone 2021: Physics of Hadrons on the Light Front

28 November 2021 to 4 December 2021 Jeju Booyoung Hotel Asia/Seoul timezo

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Enter your search term
                             Q
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Overview	Light Cone 2021: Physics of Hadrons on the Light Front
Scientific Programme	November 29 - December 4, 2021
Call for Abstracts	
Timetable	Jeju Booyoung Hotel & ZOOM (online)
Contribution List	https://indico.cern.ch/e/LC2021
Book of Abstracts	Timezone Converter: https://savvytime.com
Registration	Registration deadline: Nov. 20, 2021
Participant List	
Conference Venue	Welcome to LC 2021!
Committees	Because of the covid-19 pandemic, LC 2020 was moved to LC 2021.
Sponsors	Light Cone 2021 is the latest in the series of conferences that, beginning in 1991, have played an
Poster	important role in promoting research towards a rigorous description of hadrons and nuclei based on
ILCAC	quantisation methods in the front form.
Previous LC meetings	As with earlier conferences in the series, the aim of this meeting will be to create a scientific program
Gary McCartor Fellowship	that will stimulate developments at the forefront of nuclear, hadron and particle physics research. In particular, Light Cone 2021 will focus on the following physics topics and approaches:
Visa & Quarantine (IMPORTANT)	Physics Topics
Hotel Reservation	 Electroweak scatterings with nuclear targets
Directions from/to the airport	 Few- and many-body physics Finite temperature and density QCD Hadron structure and parton physics
Remote Participation (ZOOM)	 High-energy experiments Hypernuclei Meson and baryon (N*) resonances
First Circular	 Neutrino physics Nuclear structure and nuclear matter
Application for Quarantine Exemption	 Physics of electron-ion colliders Physics of B factories Quarkonia
Photos	 Spin physics XYZ and exotic hadrons

2022 APCTP Workshop on Nuclear Physics 2022, Physics of Excited Hadrons in the Present and Future Facilities, Jeju Island, Jul. 11-16, 2021₂

In-person meeting

Invited Speakers

Invited Speakers

P. Achenbach (U. Mainz) S.-I. Ando (Sunmoon U.) A. J. Arifi (APCTP) K.-T. Brinkmann (U. Giessen) V. Burkert (JLab) A. Camsonne (JLab) H.-M. Choi (Kyungpook Nat. U.) P. Cole (Lamar U.) M. Doering (George Washington U.) T. Hayward (U. Connecticut) A. Hosaka (RCNP, Osaka U.) T. Ishikawa (Tohoku U.) C.-R. Ji (North Carolina State U.) K. Joo (U. Connecticut) A. Kim (U. Connecticut) H.-C. Kim (Inha U.) S.-H. Kim (Soongsil U.) T.-S. H. Lee (Argonne Nat. Lab.) V. Mokeev (JLab) S.-I. Nam (Pukyong Nat. U.) H. Noumi (RCNP, Osaka U.) G. Ramalho (Soongsil U.) H. Sako (J-PARC) H. Schmieden (U. Bonn) Y. Wunderlich (U. Bonn) B. G. Yu (KAU) M. Zetenyi (Wigner Research Center for Phys.)



APCTP Focus Program in Nuclear Physics 2022, Hadron Physics Opportunities with JLab Energy and Luminosity Upgrade, APCTP, Pohang, Jul. 18-23, 2022

Hybrid meeting



APCTP Focus Program in Nuclear Physics 2022: Hadron Physics Opportunities with JLab Energy and Luminosity Upgrade

18–23 Jul 2022 APCTP Asia/Seoul timezone

Enter your search term Q

Invited Speakers

H. Avagyan (JLab) V. Burkert (JLab) K.-B. Chen (Shandong Jianzhu U.)* M. Constantinou (Temple U.)* P. Di Nezza (INFN, Frascati)* C. Dilks (Duke U.) T. Frederico (ITA, São Paulo) H. Hakobyan (U. Santa Maria) T. Hayward (U. Connecticut) A. Ilvichev (INP, BSU) M. Jarvinen (APCTP) C. R. Ji (North Carolina State U.) K. Joo (U. Connecticut) A. Kerbizi (INFN, Trieste) A. Kim (U. Connecticut) A. Kotzinian (INFN, Torino) Z.-E. Meziani (Argonne Nat. Lab.) V. Mokeev (JLab) B. Parsamyan (CERN) J. Roche (Ohio U.) N. Sato (JLab)* K. Semenov-Tyan-Shanskiy (Kyungpook Nat. U.) D. Sivers (Portland U.) M. Sargsian (Florida Int. U.) P. Sznaider (NCBJ)* X.-B. Tong (Chin. U. of Hong Kong)* A. Vladimirov (U. Regensburg)* Y. Zhao (Argonne Nat. Lab.)*

Overview
Call for Abstracts
Timetable
Contribution List
My Conference
My Contributions
Registration
Participant List
Invited Speakers
Transportation (Updated)
Regarding COVID-19 & Visa (updated at June 12)
Link to APCTP Workshop: Physics of excited hadrons
Contact
yongseok.oh@apctp.org

The electroproduction of mesons and photons has been shown to be a powerful tool for studies of the interaction of elementary particles and their dynamics at short and long distances. In particular, studies of the orbital motion of partons encoded in transverse space and momentum distributions of partons, like Generalized Parton Distributions (GPDs) and Transverse Momentum Distributions (TMDs), have been widely recognized as key objectives of the JLab 12 GeV program. Studies of azimuthal distributions of hadrons and photons in exclusive and semi-inclusive DIS (SIDIS) provide access to variety of observables widely recognized as key objectives of the COMPASS measurements, various activities at RHIC and KEK, the LHC fixed target projects (LHC spin, SMOG2@LHCb) and a driving force behind the construction of the future Electron Ion Collider (EIC). Studies of the ground and excited nucleon state structure in terms of nucleon elastic form factors, PDFs, and the $N \rightarrow N^*$ (nucleon to nucleon resonances) transition electro-excitation amplitudes offer a unique complementary opportunity to explore the evolution of active components in the structure of the ground and excited state nucleons at distances where the transition from quark-gluon confinement to the perturbative QCD regime is expected and where the dominant part of hadron mass emerges. These studies are of particular importance to address key open problems of the Standard Model on emergence of hadron mass and quark-gluon confinement. The upgraded to 24 GeV JLab, with much wider kinematical coverage, in particular at large Q^2 , will be crucial to extend all ongoing projects at JLab, in particular studies of the 3D structure of hadrons and hadronization, pin down interaction dependent parts, providing missing deeper access to quark-gluon dynamics and opening new opportunities on studies of the charm sector and significant improvement in secondary beam capabilities.

This is an in-person meeting. Online participation will be restrictive.

This meeting is for the invited only. The number of participants shall not exceed 40. We will cover the expenses for hotel rooms and all meals during the program for all participants. If you want to join us and give a talk, please contact the LOC.

Registration Deadline: 2022. 6. 25. (CHANGED!)

Call for Abstracts Deadline: 2022. 6. 25. (CHANGED!)

Accommodation

POSCO International Center 77, Cheongam-ro, Nam-gu, Pohang-si, Gyeongsangbuk-do 37673, Korea

Phone: 054-279-8500 FAX: 054-279-8519

APCTP Workshop on the Physics of Electron Ion Collider

theoretical physics

2-4 Nov 2022

Howard Johnson Incheon Airport Hotel Asia/Seoul timezone

Overview

Call for Abstracts

Timetable

Contribution List

My Conference

My Contributions

Registration

Participant List

Invited Speakers

Venue/Directions

Regarding COVID-19 & Visa (final update)



The Electron-Ion Collider (EIC), planned to be built at the U.S. Department of Energy's (DOE) Brookhaven National Laboratory (BNL), in partnership with Thomas Jefferson National Accelerator Facility (Jefferson Lab), will be the most advanced tool for studying some of the deepest unexplored recesses of the atom.

The EIC will be a particle accelerator that collides electrons with protons and nuclei to produce snapshots of those particles' internal structure-like a CT scanner for atoms. The electron beam will reveal the arrangement of the quarks and gluons that make up the protons and neutrons of nuclei. The force that holds quarks together, carried by the gluons, is the strongest force in Nature. The EIC will allow us to study this "strong nuclear force" and the role of gluons in the matter within and all around us. What we learn from the EIC could power the technologies of tomorrow. Topics for this workshop could also include topics in heavy-ion physics, high-energy physics, and any other physics that might have connections to the EIC and its detector and accelerator technologies. We will also discuss international collaborations, especially in Asian Pacific countries.

This is an in-person meeting. We do not provide a service for online participation of audience.

Sponsors

Asia Pacific Center for Theoretical Physics



Center for High Energy Physics, Kyungpook National University



2022

Enter your search term

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Programs in 2023

- APCTP-ECT* Joint Workshop: Exploring resonance structure with transition GPDs, Trento, Italy, May 2023
- APCTP Focus Program in Nuclear Physics 2023: Hadron Physics with Hadronic Probes, APCTP, Pohang, Korea, July 2023

All workshops since 2017 have been co-organized with Kyungseon Joo.

Partnership





design credit: Professor Hans Christian Pauli, Heidelberg, Germany

I•L•C•A•C, Inc.

The International Light Cone Advisory Committee, Inc.

ILCAC News

- LC2020 is moved to LC2021 to be held at Jeju Island, Korea, July 5-10, 2021
- March 1, 2020: <u>ILCAC selects 2020 McCartor</u> <u>Fellowship awardees</u>
- October 14, 2019: <u>ILCAC awards McCartor Fund</u> <u>Fellowships</u>
- Donate to the Gary McCartor Fund

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- <u>About ILCAC</u> See new wikipedia entries
- <u>Giving to ILCAC</u>
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Questions about this site: contact <u>Elizabeth L. Lawson</u>. Last updated on July 20, 2020.

Summary & Outlook

- Reviewed activities of Korean community for EIC physics
 with the support from APCTP
- Go to the next step for international collaboration in theory & experiments

Proposed partnership w/ international collab.



Proposed partnership w/ international collab.

