A Virtual Tribute to Quark Confinement and the Hadron Spectrum 2021

Monday 2 August 2021 - Friday 6 August 2021

online

Scientific Programme

Invited plenary speakers
1) Chris Kelly (confirmed)
2) Julius Kuti (confirmed)
3) Krzysztof Cichy (confirmed)
4) Jan Zaanen (confirmed)
5) Andreas Bauswein (confirmed)
6) Jonivar Skullerud (confirmed)
7) Panos Christakoglou (confirmed)
8) Zurab Berezhiani (confirmed)
9) Guido Martinelli (confirmed)
10) Elke Aschenauer (confirmed)
11) Uwe-Jens Wiese (confirmed)
12) Gerald Dunne (confirmed)
13) Ivan Vitev (confirmed)
14) Yukinao Akamatsu (confirmed)
15) Eric Braaten (confirmed)
16) Andreas Kronfeld (confirmed)
17) Felix Ringer (confirmed)
18) Antonio Vairo (confirmed)
Roundtable discussions

round table on EIC:

JianWei Qiu (chair, confirmed)
Zhongbo Kang (confirmed)
Peter Petreczky (confirmed)
Ignazio Scimeni (confirmed)

round table on open quantum systems:

Cliff Burgess (confirmed)
Miguel Escobedo (confirmed)
Hans-Werner Hammer (chair, confirmed)
Alexander Rothkopf (confirmed)

round table on machine learning:

Kyle Cranmer (chair, confirmed)
Andreas Ipp (confirmed)
Nobuo Sato (confirmed)
Phiala Shanahan (confirmed)

A: Vacuum structure and confinement

Mechanisms of quark confinement (vortices, monopoles, calorons...) and the structure of the vacuum in non-Abelian gauge theories. Chiral symmetry breaking, and the Dirac spectrum in the low-momentum region. Studies of ghost and gluon propagators. Confining strings and flux tubes, their effective actions. Renormalons and power corrections. Interface between perturbative and nonperturbative physics.

Conveners: D. Antonov (ITP, U. Heidelberg), M. Faber (TU Vienna), J. Greensite (San Francisco State U)

Focus Subsection: Emergent Gauge Fields and Chiral Fermions

Chiral fermions and anomalous hydrodynamic effects in condensed matter systems, quantum simulators of QCD, topological phenomena in condensed matter systems.

Conveners: F. Assaad (Würzburg U.), K. Jansen (DESY Zeuthen), T. Schaefer (NC State U), V. Shevchenko (NRC Kurchatov I.)

B: Light quarks

Chiral and soft collinear effective theories; sum rules; lattice calculations; Schwinger-Dyson equations; masses of light quarks; light-quark loops; phenomenology of light-hadron form factors, spectra and decays; structure functions and generalized parton distributions; exotics and glueballs; experiments.

Conveners: J. Goity (Hampton U.), B. Ketzer (Bonn U.), M. Constantinou (Temple U.) H. Sazdjian (IPN Orsay), N. G. Stefanis (Ruhr U. Bochum)

C: Heavy quarks

Heavy-light mesons, heavy quarkonia, heavy baryons, heavy exotics and related topics: phenomenology of spectra, decays, and production; effective theories for heavy quarks (HQET, NRQCD, pNRQCD, vNRQCD, SCET); sum rules for heavy hadrons; lattice calculations of heavy hadrons; heavy-quark mass determinations; experiments.

Conveners: G. Bodwin (Argonne NL), P. Pakhlov (ITEP, Moscow), J. Soto (U. Barcelona), A. Vairo (TU Munich)

D: Deconfinement

QCD at finite temperature; quark-gluon plasma detection and characteristics; jet quenching; transport coefficients; lattice QCD and phases of quark matter; QCD vacuum and strong fields; heavy-ion experiments. experiments.

Conveners: P. Foka (GSI), J. Ghiglieri (SUBATECH, Nantes), E. Iancu (CEA/DSM/Saclay), P. Petreczky (BNL), A. Vuorinen (U. Helsinki)

E: QCD and New Physics

Physics beyond the Standard Model from hadronic physics, including precision experimental data and precision calculations.

Conveners: W. Detmold (MIT), S. Gardner (U. Kentucky), M. Gersabeck (U. Manchester), E. Mereghetti (LANL), J. Portoles (IFIC, Valencia)

F: Nuclear and Astroparticle Physics

Nuclear matter; nuclear forces; quark matter; neutron and compact stars.

Conveners: M. Alford (Washington U. St.Louis), D. Blaschke (U. Wroclaw), T. Cohen (U. Maryland), J. Marton (SMI Vienna), A. Schmitt (U Southampton)

G: Strongly Coupled Theories

Hints on the confinement/deconfinement mechanisms from supersymmetric and string theories; strongly coupled theories beyond the Standard Model; applications of nonperturbative methods of QCD to other fields.

Conveners: D. Espriu (U. Barcelona), Z. Fodor (U. Wuppertal), S. Khalil (Zewail City U.), A. Martin (U. Notre Dame), E. Neil (U. Colorado)

H. Statistical Methods for Physics Analysis in the XXI Century

Machine learning techniques; data fitting and extraction of signals; new developments in unfolding methods; averaging and combination of results.

Conveners: T. Dorigo (U. Padova), S.V. Gleyzer (CERN), P. Shanahan (MIT), L. Tagliacozzo (U. Barcelona)