

# **50 Years of Quantum Chromodynamics**

## **Report of Contributions**

Contribution ID: 1

Type: **not specified**

## Welcome and Introduction

*Monday 11 September 2023 08:40 (20 minutes)*

**Presenters:** BERN, Zvi (University of California Los Angeles (US)); Prof. KANG, Zhongbo

**Session Classification:** Monday

Contribution ID: 2

Type: **not specified**

## Real Virtuality and Avatars of Doom

*Monday 11 September 2023 09:00 (50 minutes)*

**Presenter:** Prof. WILCZEK, Frank (MIT)

**Session Classification:** Monday

Contribution ID: 3

Type: **not specified**

## QCD beyond diagrams

*Monday 11 September 2023 09:50 (50 minutes)*

**Presenter:** CREUTZ, Michael (Brookhaven Lab)

**Session Classification:** Monday

Contribution ID: 4

Type: **not specified**

# The Mechanism of Quark Confinement

*Monday 11 September 2023 11:10 (50 minutes)*

**Presenter:** Prof. SUSSKIND, Leonard (Stanford)

**Session Classification:** Monday

Contribution ID: 5

Type: **not specified**

## **Flying Penguins and Other Recollections on QCD history**

*Monday 11 September 2023 14:00 (50 minutes)*

**Presenter:** VAINSHTEIN, Arkady (University of Minnesota)

**Session Classification:** Monday

Contribution ID: 6

Type: **not specified**

## Prelude to the QCD Revolution

*Monday 11 September 2023 14:50 (50 minutes)*

**Presenter:** JAFFE, Robert (MIT)

**Session Classification:** Monday

Contribution ID: 7

Type: **not specified**

## The role of lattice QCD in precision physics

*Monday 11 September 2023 16:10 (50 minutes)*

**Presenter:** EL-KHADRA, Aida

**Session Classification:** Monday



Contribution ID: 8

Type: **not specified**

## QCD, the theory of hadrons: then and now

*Monday 11 September 2023 17:00 (50 minutes)*

**Presenter:** Prof. SHIFMAN, Mikhail (University of Minnesota)

**Session Classification:** Monday

Contribution ID: 9

Type: **not specified**

## QCD and I: a long and complex relation

*Tuesday 12 September 2023 09:00 (50 minutes)*

**Presenter:** VENEZIANO, Gabriele

**Session Classification:** Tuesday

Contribution ID: **10**

Type: **not specified**

## QCD, chirality, and topological insulators

*Tuesday 12 September 2023 09:50 (50 minutes)*

**Presenter:** KAPLAN, David

**Session Classification:** Tuesday

Contribution ID: **11**

Type: **not specified**

## **The role of Event Generators (in the exploration of QCD)**

*Tuesday 12 September 2023 11:10 (50 minutes)*

**Presenter:** SJOSTRAND, Torbjorn (Lund University (SE))

**Session Classification:** Tuesday

Contribution ID: 12

Type: **not specified**

## Seeing quarks and gluons: following QCD from initial to final states

*Tuesday 12 September 2023 14:00 (50 minutes)*

**Presenter:** STERMAN, George

**Session Classification:** Tuesday

Contribution ID: 13

Type: **not specified**

## 50+ years of lepton pair production

*Tuesday 12 September 2023 14:50 (50 minutes)*

**Presenter:** ELLIS, Richard Keith (University of Durham (GB))

**Session Classification:** Tuesday

Contribution ID: 14

Type: **not specified**

## Confinement and Dimensional Transmutation

*Tuesday 12 September 2023 16:10 (50 minutes)*

**Presenter:** KLEBANOV, Igor (Princeton University)

**Session Classification:** Tuesday

Contribution ID: 16

Type: **not specified**

## **Bhaumik Public Lecture: Fifty Years of Quantum Chromodynamics (The Theory of The Strong Nuclear Force)**

*Tuesday 12 September 2023 18:00 (1h 30m)*

Quantum Chromodynamics is fifty years old this year. I shall discuss the past, present and future of this remarkable theory.

**Presenter:** GROSS, David (KITP/UCSB)

**Session Classification:** Public Lecture



Contribution ID: 17

Type: **not specified**

## Effective Field Theories of QCD

*Wednesday 13 September 2023 09:00 (50 minutes)*

**Presenter:** Prof. STEWART, Iain

**Session Classification:** Wednesday

Contribution ID: **18**

Type: **not specified**

## **Classical lumps and their quantum descendants in QCD's Regge limit**

*Wednesday 13 September 2023 09:50 (50 minutes)*

**Presenter:** VENUGOPALAN, Raju

**Session Classification:** Wednesday

Contribution ID: 19

Type: **not specified**

## **The evolution of the precision program: from QCD to SMEFT**

*Wednesday 13 September 2023 11:10 (50 minutes)*

**Presenter:** BOUGHEZAL, Radja

**Session Classification:** Wednesday

Contribution ID: 20

Type: **not specified**

# Constraints on QCD Dynamics from Symmetries and Anomalies

*Wednesday 13 September 2023 14:00 (50 minutes)*

**Presenter:** Prof. KOMARGODSKI, Zohar (Stony Brook University)

**Session Classification:** Wednesday

Contribution ID: 21

Type: **not specified**

# Higgs-Confinement Phase Transitions in QCD

*Wednesday 13 September 2023 14:50 (50 minutes)*

**Presenter:** DUMITRESCU, THOMAS

**Session Classification:** Wednesday

Contribution ID: 22

Type: **not specified**

## Experimental QCD

*Wednesday 13 September 2023 16:10 (50 minutes)*

**Presenter:** JACAK, Barbara (University of California Berkeley (US))

**Session Classification:** Wednesday

Contribution ID: 23

Type: **not specified**

## Two amuse bouche to celebrate the birth of QCD

*Wednesday 13 September 2023 17:00 (50 minutes)*

**Presenter:** PISARSKI, Robert

**Session Classification:** Wednesday

Contribution ID: 24

Type: **not specified**

## Integrability of high-energy QCD

*Thursday 14 September 2023 09:00 (50 minutes)*

**Presenter:** Prof. KORCHEMSKY, Gregory (CEA Saclay)

**Session Classification:** Thursday



Contribution ID: 25

Type: **not specified**

## High-Energy Collider Observables at Ultimate Precision in QCD

*Thursday 14 September 2023 09:50 (50 minutes)*

**Presenter:** GEHRMANN, Thomas Kurt (University of Zurich (CH))

**Session Classification:** Thursday

Contribution ID: 26

Type: **not specified**

## **Perturbative techniques for precision collider physics and cosmology**

*Thursday 14 September 2023 11:10 (50 minutes)*

**Presenter:** Prof. ANASTASIOU, Babis (ETH Zurich)

**Session Classification:** Thursday

Contribution ID: 27

Type: **not specified**

## From QCD to Gravitational Waves

*Thursday 14 September 2023 14:00 (50 minutes)*

**Presenter:** KOSOWER, David (Centre d'Etudes Nucleaires de Saclay (FR))

**Session Classification:** Thursday

Contribution ID: 28

Type: **not specified**

## **Computing Feynman's parton distributions on lattice using large-momentum effective theory**

*Thursday 14 September 2023 14:50 (50 minutes)*

**Presenter:** JI, Xiangdong

**Session Classification:** Thursday

Contribution ID: 29

Type: **not specified**

## New Heavy Exotics

*Thursday 14 September 2023 16:10 (50 minutes)*

**Presenter:** KARLINER, Marek (Tel Aviv University (IL))

**Session Classification:** Thursday

Contribution ID: 30

Type: **not specified**

# **Holographic Light-Front QCD: A Novel Nonperturbative Approach to Color Confinement and Hadron Physics**

*Thursday 14 September 2023 17:00 (50 minutes)*

**Presenter:** BRODSKY, Stanley J. (SLAC National Accelerator Laboratory, Stanford University)

**Session Classification:** Thursday

Contribution ID: **31**

Type: **not specified**

## **Exploring proton's quark/gluon structure without breaking it**

*Friday 15 September 2023 09:00 (50 minutes)*

**Presenter:** Dr QIU, Jianwei (Jefferson Lab)

**Session Classification:** Friday

Contribution ID: **32**

Type: **not specified**

## **Nonrelativistic conformal field theory and nuclear reactions**

*Friday 15 September 2023 09:50 (50 minutes)*

**Presenter:** Prof. SON, Dam Thanh (University of Chicago)

**Session Classification:** Friday



Contribution ID: 33

Type: **not specified**

## Yang-Mills Glueballs as Closed Rotating Strings

*Friday 15 September 2023 11:10 (50 minutes)*

**Presenter:** DUBOVSKY, Sergei (NYU)

**Session Classification:** Friday

Contribution ID: 34

Type: **not specified**

## From QCD to QGP: Strong interaction in extremis

*Friday 15 September 2023 14:00 (50 minutes)*

**Presenter:** Dr WANG, Xin-Nian (Lawrence Berkeley National Lab. (US))

**Session Classification:** Friday

Contribution ID: 35

Type: **not specified**

## **From partons to jets and back - Simulating QCD interactions at highest energies**

*Friday 15 September 2023 14:50 (50 minutes)*

**Presenter:** HOECHE, Stefan (Fermilab)

**Session Classification:** Friday

Contribution ID: 36

Type: **not specified**

## The Rise of Jet Substructure

*Friday 15 September 2023 16:10 (50 minutes)*

**Presenter:** Prof. MOULT, Ian (Yale University)

**Session Classification:** Friday

Contribution ID: 37

Type: **not specified**

**TBA**

**Presenter:** MISTLBERGER, Bernhard

**Session Classification:** Friday

Contribution ID: **38**

Type: **not specified**

## Adjourn

*Friday 15 September 2023 17:00 (15 minutes)*

**Presenters:** BERN, Zvi (University of California Los Angeles (US)); Prof. KANG, Zhongbo

**Session Classification:** Friday

Contribution ID: 39

Type: **not specified**

## Reminiscences and Reflections on 50 plus years of QCD

*Monday 11 September 2023 19:30 (2 hours)*

Prof. Helen Quinn will give a dinner talk. The talk will start just after dessert is served.

**Presenter:** QUINN, Helen (SLAC)