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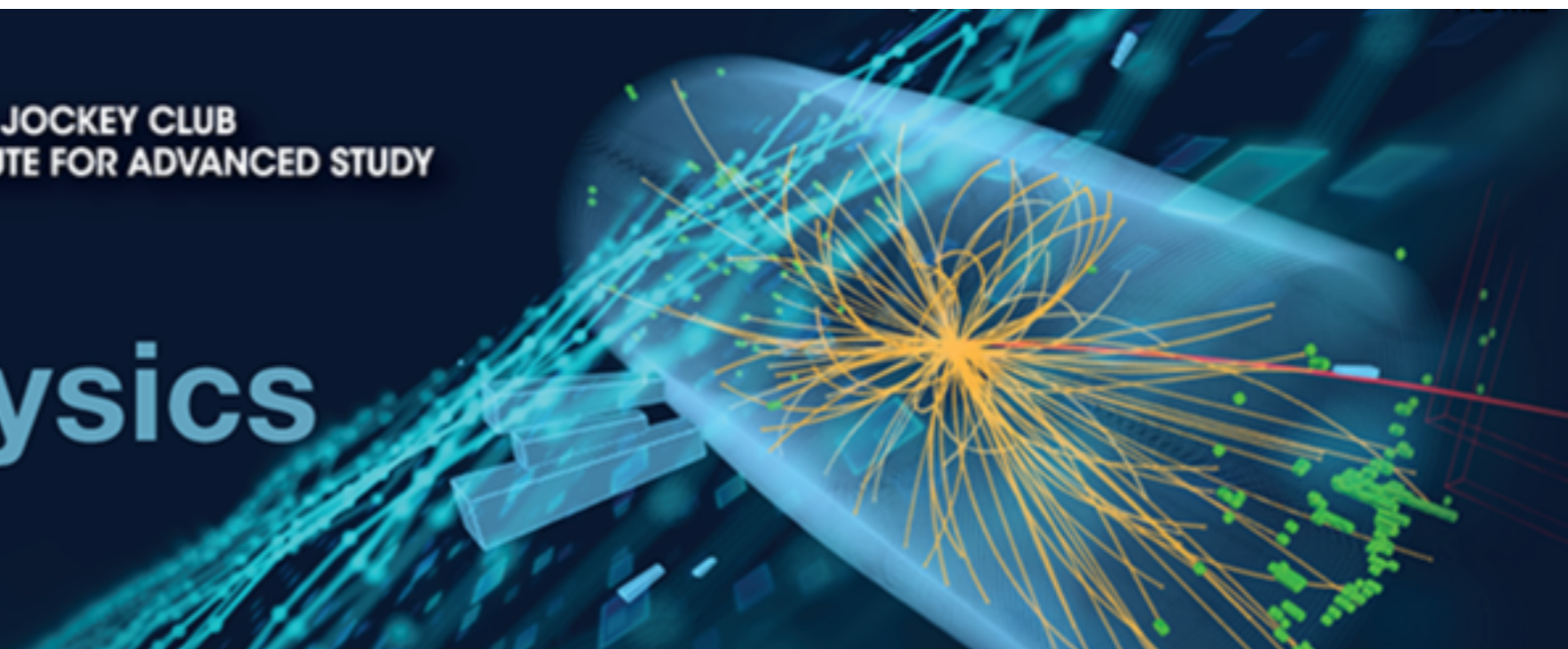


HKUST JOCKEY CLUB
INSTITUTE FOR ADVANCED STUDY

IAS PROGRAM

High Energy Physics

January 7-25, 2019



HKUST Jockey Club INSTITUTE FOR ADVANCED STUDY

IAS Program on

The Future of High Energy Physics

5 - 30 Jan 2015

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IAS Program on

High Energy Physics

4-29 Jan 2016 Conference: 18-21 Jan 2016

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High Energy Physics

9 - 26 Jan 2017
Conference: 23 - 26 Jan 2017

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High Energy Physics

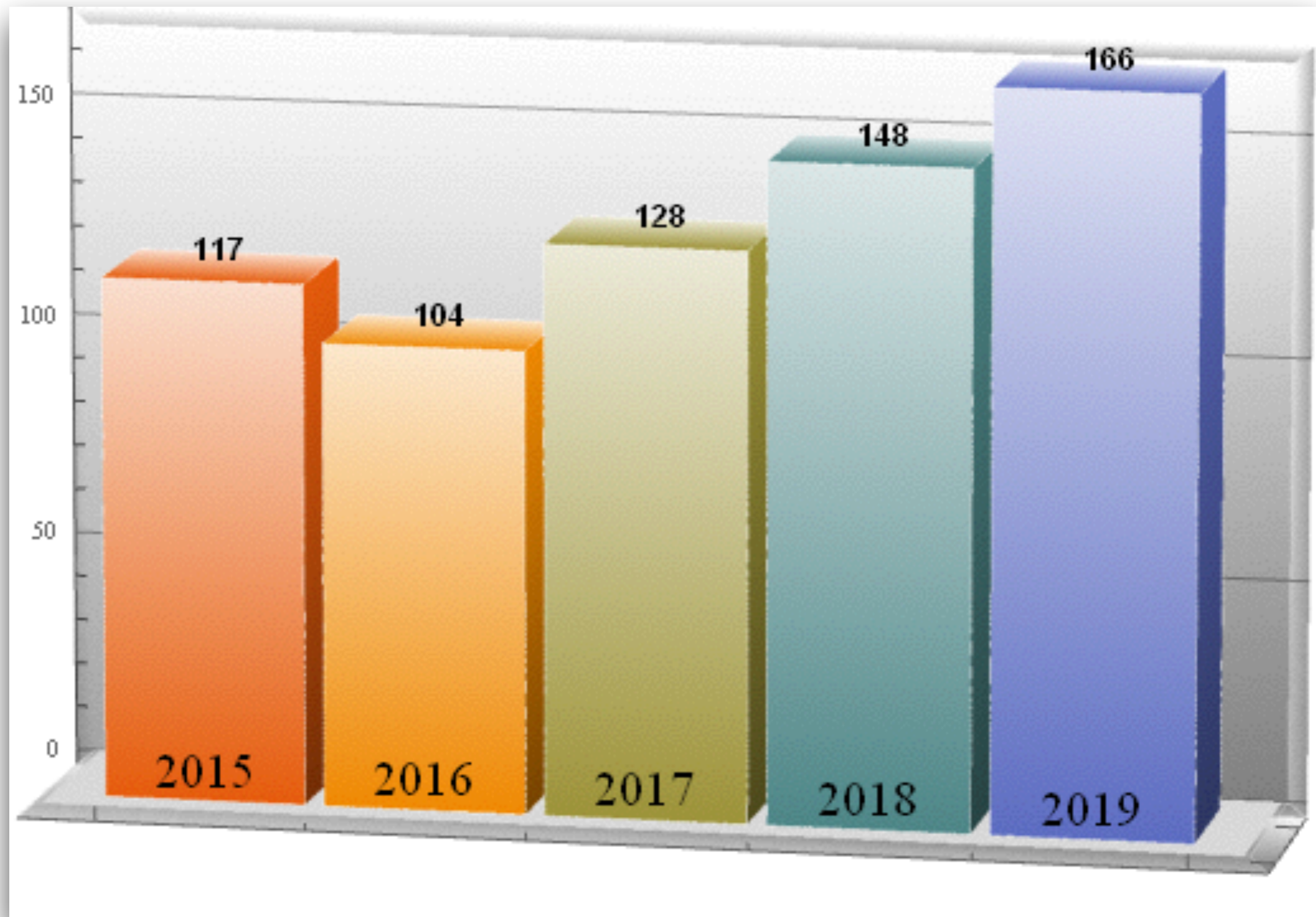
8 - 26 Jan 2018

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IAS PROGRAM

High Energy Physics

January 7-25, 2019



Time schedule

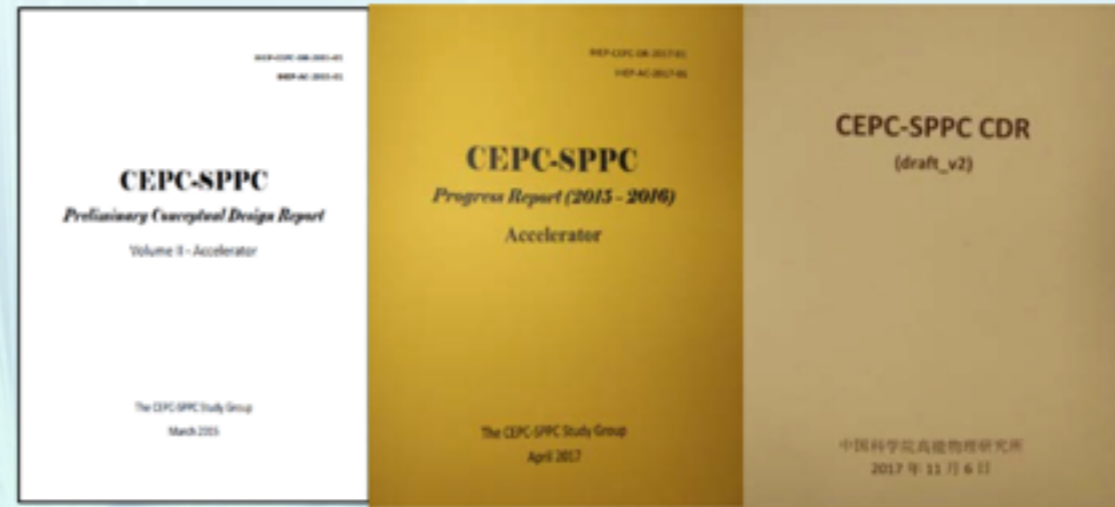


- **CPEC**
 - **Pre-CDR study, R&D and preparation work**
 - **Pre-study: 2013-15 → Pre-CDR by the end of 2014**
 - **R&D: 2016-2020**
 - **Engineering Design: 2015-2020**
 - **Construction: 2021-2027**
 - **Data taking: 2030-2036**
- **SPPC**
 - **Pre-study, R&D and preparation work**
 - **Pre-study: 2013-2020**
 - **R&D: 2020-2030**
 - **Engineering Design: 2030-2035**
 - **Construction: 2036-2042**
 - **Data taking: 2042 -**

CEPC Accelerator CDR Completed

CEPC accelerator CDR completed and released on Sept. 2, 2018

- Executive Summary
- 1. Introduction
- 2. Machine Layout and Performance
- 3. Operation Scenarios
- 4. CEPC Collider
- 5. CEPC Booster
- 6. CEPC Linac
- 7. Systems Common to the CEPC Linac, Booster and Collider
- 8. Super Proton Proton Collider
- 9. Conventional Facilities
- 10. Environment, Health and Safety
- 11. R&D Program
- 12. Project Plan, Cost and Schedule
- Appendix 1: CEPC Parameter List
- Appendix 2: CEPC Technical Component List
- Appendix 3: CEPC Electric Power Requirement
- Appendix 4: Advanced Partial Double Ring
- Appendix 5: CEPC Injector Based on Plasma Wakefield Accelerator
- Appendix 6: Operation as a High Intensity γ -ray Source
- Appendix 7: Operation for e-p, e-A and Heavy Ion Collision
- Appendix 8: Opportunities for Polarization in the CEPC
- Appendix 9: International Review Report



March 2015

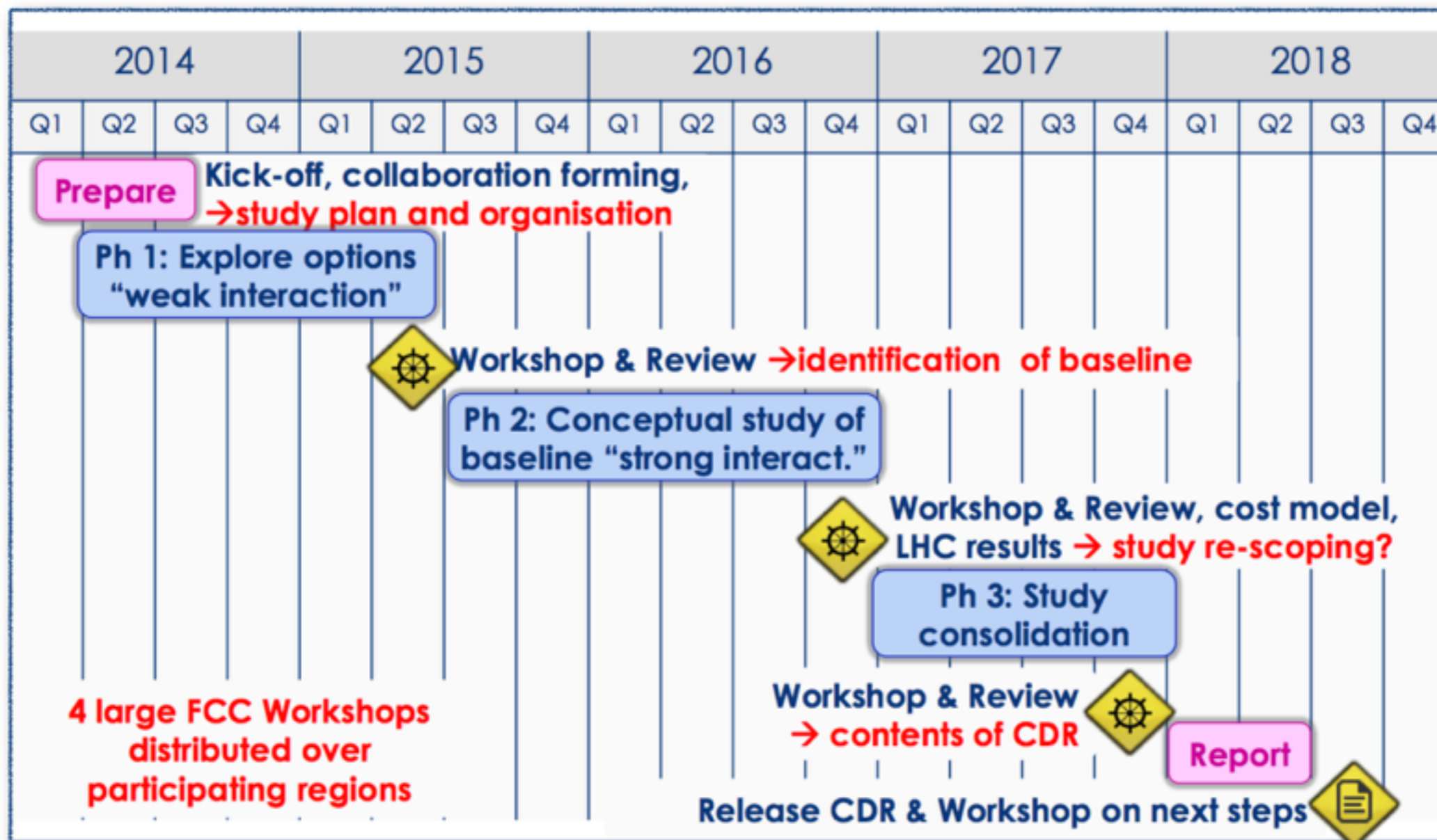
April 2017

Draft CDR for
Mini International
Review in Nov. 2017



CDR Version for International Review June 2018, and formally released on Sept. 2, 2018: arXiv: 1809.00285, http://cepc.ihep.ac.cn/CDR_v6_201808.pdf

The 5-year international FCC design study





FCC study: CDR released on 15 January 2019

CERN ACCELERATING SCIENCE

Sign in Directory

Conceptual Design Report Volumes

Four CDR volumes

FCC PHYSICS OPPORTUNITIES

FCC LEPTON COLLIDER

FCC HADRON COLLIDER

HIGH-ENERGY LHC

10-page documents

European Strategy Update Documents

FCC INTEGRATED PROJECT

FCC LEPTON COLLIDER

FCC HADRON COLLIDER

HIGH-ENERGY LHC

Future Circular Collider Study

Statement from the FCC International Advisory Committee

Press Kit

FCC - 100km

M. Koratzinos, 2019 HEP program at HKIAS

2019 HEP Program - White Papers

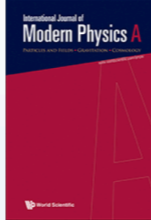
A citable source of reference material, based on the conference and program presentations and discussions.

Materials of the last three editions of the IAS HEP Program were published by World Scientific as special editions of the

International Journal of Modern Physics A

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International Journal of Modern Physics A

Particles and Fields; Gravitation; Cosmology

Volume: 30, Number: 23 (20 August 2015)

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Special Issue — Future of High Energy Physics — Some Aspects; Guest Editors: Yanjun Tu and S.-H. Henry Tye

Preface
DOI: 10.1142/S0217751X15020042
1502004

[Abstract](#) | [References](#) | [PDF \(101 KB\)](#) | [PDF Plus \(109 KB\)](#) | [Errata](#) [Find](#) 

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Special Issue: The Future of High Energy Physics — Some Aspects (II); Guest Editors: L. R. Flores Castillo and K. Prokofiev

Preface
DOI: 10.1142/S0217751X1602005X
1602005

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International Journal of Modern Physics A

Particles and Fields; Gravitation; Cosmology

Volume: 32, Number: 34 (10 December 2017)

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Special Issue: The Future of High Energy Physics — Some Aspects (III); Guest Editors: L. R. Flores Castillo and K. Prokofiev

Preface
Luis R. Flores Castillo, Kirill Prokofiev
<https://doi.org/10.1142/S0217751X1702002X>
1702002

[Abstract](#) | [PDF \(61 KB\)](#) | [PDF Plus \(62 KB\)](#)

Submission of 2019 White papers:

- Submission details: <http://iasprogram.ust.hk/hep/2019/activities.php>
- Deadline for title and abstract submission: March 3, 2019
- If interested, please contact the editors: Luis Flores Castillo <Luis.Flores.Castillo@cern.ch>, Kirill Prokofiev <kprok@ust.hk> and Yanjun Tu <yanjuntu@hku.hk>.

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Institute of High Energy Physics, Chinese Academy of Sciences

Jie GAO
Institute of High Energy Physics, Chinese Academy of Sciences

Tao LIU (Chair)
The Hong Kong University of Science and Technology

Conveners of Mini-workshops

Theory - Physics Opportunities and Advanced Tools:

Tao LIU
The Hong Kong University of Science and Technology

Michael SPANNOVSKY
Durham University

Experiment / Detector - Tracking and Calorimetry at Colliders:

Joao GUIMARAES DA COSTA
Institute of High Energy Physics, Chinese Academy of Sciences

Charles C. YOUNG
SLAC National Accelerator Laboratory, Stanford University

Accelerator - Beam Polarization in Future Colliders:

Jie GAO
Institute of High Energy Physics, Chinese Academy of Sciences

Yuhong ZHANG
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Thank you!

See you in 2020!