

# Future document(s) for AFTER@LHC

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Andry, Cynthia and myself wish to have something concrete by December 2014 (can be a draft, ..., a finalised document).

- ESPG submission → (more) public ?
- Expression of Interest
- CERN Yellow Report (other color ?)
- Letter of Intent
- Physics Book
- Review in a peer-review journal
- Special Issue in a peer-review journal



# ESPG Submission

- Document submitted in July 2012
- 20 authors, 13 pages
- Includes: executive summary, lumi tables, highlights
- 1 slide in the QCD presentation (same as COMPASS) at the symposium
- Mentionned at several places in the briefing book of ES

## Physics Briefing Book

CERN-ESG-005

13 January 2013

Input for the Strategy Group to draft the update of the  
European Strategy for Particle Physics

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Proposals were also submitted to the strategy update for new research infrastructures mainly dedicated to studies of strong interactions. The “Report on a Large Hadron Electron Collider at CERN (LHeC)” [ID147, 12] opens a perspective for very detailed measurement of the partonic structure of nucleons and nuclei in completely new kinematic domains and with precision vastly surpassing what was achieved at HERA. There are also proposals for “A Fixed-Target Experiment at the LHC (AFTER@LHC)” [ID117] and for a “New  $ep$  collider based on the SPS” [ID12]. Research programmes related to strong interaction physics were also submitted by numerous existing and/or approved experiments. Selected prospects for QCD measurements within these projects are described in the following sections.

Detailed studies of quarkonia and open heavy-flavour production are also among the goals of the proposed AFTER@LHC. With the similar energy range ( $\sqrt{s} \approx 115$  GeV for  $pp$ ) as RHIC but with luminosity three orders of magnitude higher, and high acceptance and energy resolution, AFTER@LHC should be able to carry out precise measurements of most of the S- and P-wave quarkonia. Correlation measurements of quarkonia with heavy flavour production and prompt photons are also within reach [ID117].

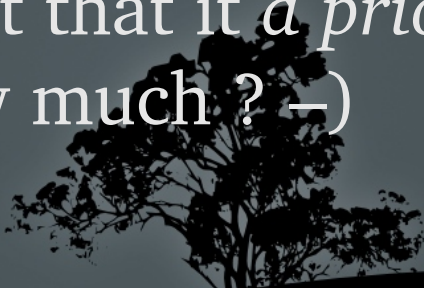
Detailed information on the isospin asymmetry of the quark sea could also be obtained in AFTER@LHC, from precision measurements of Drell-Yan pairs with LHC protons scattered on both hydrogen and deuterium targets. Moreover, independent determination of the gluon content in the proton and the neutron should be possible, based on the measurement of quarkonium production and prompt photons [ID117]. A

# Expression of Interest

## Pros:

- Official contact with LHCC/CERN
- May not required a lot of scientific work

## Cons:

- Requires a convincing list of authors (for some of our interested colleagues it may be tricky to sign it now)
  - Do we already have enough materials ?
  - Similar remarks apply to a LoI (except that it *a priori* requires more scientific work – how much ? –)
- 

# CERN Yellow Report

## Pros:

- Contact with CERN
- Visibility in general

## Cons

- A significant editorial work
- Usually over 100 pages
- Not published in a peer-review journal



# Review in a peer-review journal

Examples: Physics Reports, Journal of Physics G, EPJC

Pros:

- No commitments for a given author
- Real publication

Cons:

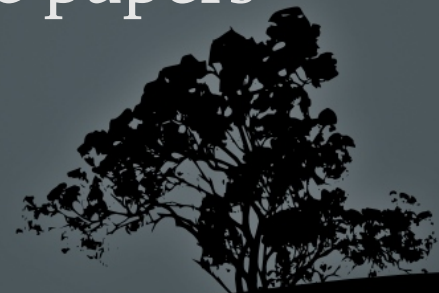
- A significant editorial work
- ...

↔ Physics Book ???



# Special issue (in Adv. High En. Phys ?)

- Similar philosophy as a proceedings volume, BUT
  - Published in a real journal (IF: 3.5 for AHEP)
  - Not limited to the participants of a given meeting
  - We can fix the timescale
  - The content can be controlled in a *soft* way by the guest editor
  - Can include reviews or scientific papers



# Special Issue on

## Comparing Particle Productions at RHIC and LHC Energies

### Call for Papers

The Relativistic Heavy Ion Collider (RHIC) at Brookhaven National Laboratory (BNL) has been opening a new era for high energy collisions, in which the center-of-mass energy per nucleon pair reached highly 200 GeV. At the RHIC, a lot of experimental data on proton-proton, deuteron-gold, copper-copper, and gold-gold collisions at different GeV energies have been reported. The Large Hadron Collider (LHC) at European Organization for Nuclear Research (CERN) has advanced the center-of-mass energy per nucleon pair to TeV region. Many experimental data on proton-proton, proton-lead, and lead-lead collisions at different TeV energies have been published. Correspondingly, many modeling works have been done on the data analyses at RHIC and LHC energies.

There are some common laws on particle productions in collisions at RHIC and LHC energies. Besides, more special properties are observed on the particle productions in the collisions. We are interested in comparative studies on the particle productions in collisions at RHIC and LHC energies. This is an important issue for cosmic ray physics also because more particles are produced in cosmic ray-induced collisions at higher energy. Comparative studies on the particle productions in collisions at RHIC, LHC, and higher energies are useful for high energy, nuclear, and cosmic ray physicists.

We intend to publish a special issue on comparing particle productions at RHIC and LHC energies. The editors would welcome original research articles as well as review articles from both the theorists and experimentalists. Potential topics include, but are not limited to:

- Rapidity distributions and correlations
- Transverse momentum distributions and correlations
- Collective flow effects and correlations
- Statistical and dynamical fluctuations
- Dynamical evolution of interacting system
- Statistical behaviors of particle productions
- Extracted temperatures and other parameters
- Space structures of interacting system
- Nuclear penetrating and stopping effects
- Nuclear viscosity effects

- Nuclear shadowing effects

Before submission authors should carefully read over the journal's Author Guidelines, which are located at <http://www.hindawi.com/journals/ahep/guidelines/>. Prospective authors should submit an electronic copy of their complete manuscript through the journal Manuscript Tracking System at <http://mts.hindawi.com/submit/journals/ahep/rhic/> according to the following timetable:

Manuscript Due	Friday, 27 June 2014
First Round of Reviews	Friday, 19 September 2014
Publication Date	Friday, 14 November 2014

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# Example





# Advertising publications

- CERN courier <http://cerncourier.com/>
- Europhysics News <http://www.europhysicsnews.org/>
- Nuclear Physics News <http://www.nupecc.org/npn/>  
↔ *NuPECC*
- CNRS journal, INFN journal, DFG journal ?
- Any volunteers to draft/author one ?

