

# Snowmass White Paper: Small $x$ / forward detectors



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- Snowmass white papers
- Low  $x$ , diffraction, BFKL, saturation white paper
- Forward detector white paper

# Snowmass white papers

- General idea: Creating a useful Snowmass document based on interesting LOIs and talks
- These white papers will serve as reference for EF06 final report, and also for the Snowmass 2021 final report
- The white paper can be submitted and published in peer-reviewed publications since they will represent references in our field
- We propose two additional white papers in EF06:
  - Small  $x$  physics, saturation, diffraction, BFKL: more a phenomenology paper (there will be also a EIC dedicated paper on saturation)
  - Forward detectors: “experimental” papers with proposals for new detectors
  - Obviously there should be some cross references between the two papers
- In the next slides, we propose a structure for these papers with different people responsible for each section
- Draft papers can be put on overleaf and need to be finished by Spring 2021

# White paper 1: Small $x$ , BFKL, saturation, diffraction

- Low  $x$  physics and BFKL

- Mueller Navelet jets at LHC - Agustin Sabio Vera, Grigorios Chachamis, Cristian Baldenegro, Deniz Cerci, Salim Cerci, Michael Klasen, Mats Kampshoff
- Jet gap jets at LHC (measurements and theory) - Federico Deganutti, Cristian Baldenegro, Michael Klasen, Jens Salomon, Pablo Gonzales
- Minijets - Mark Strikman
- Semihard processes - Francesco Celiberto, Alessandro Papa, Martin Hentschinski
- Heavy flavor production - Krzysztof Kutak, Michael Fucilla
- Relation with PDFs - Valerio Bertone
- UPC physics - Daniel Tapia Takaki

- Saturation

- Jets in  $pA$  at LHC - Cyrille Marquet
- Forward and central-forward jets - Krzysztof Kutak, Piotr Kotko
- Semihard processes - Mike Fucilla
- Top in  $pA$ , AA (CGC) - Georgios Krintiras

- Diffraction (Soft and hard)
  - Odderon and total cross section - Christophe Royon, Ken Osterberg
  - Hard diffraction - Christophe Royon, Cristian Baldenegro
- BSM and photon induced processes at the LHC
  - $WW$ ,  $Z\gamma$ ,  $\gamma\gamma$  exclusive production - Cristian Baldenegro, Justin Williams
  - $t\bar{t}$  exclusive production - Michael Pitt, Andrea Bellora
- Additional topics? Additional contributors?

# White paper 2: Forward detectors

- **FASER**
  - FASER upgrade - Felix Kling
  - Neutrino programme - Maria Carzelli
- **Forward Proton Spectrometer**
  - PPS (CMS) - Jonathan Hollar, Simone Giani, Justin Williams
  - AFP (ATLAS) - Michael Rijssenbeek
  - TOTEM - Joachim Baechler, Simone Giani
- **Forward Multiparticle spectrometer**
  - Hadron spectra - Mike Albrow
  - BSM - light long lived neutral particles - Mike Albrow
- **FOCAL (forward calorimeter in ALICE) - Constantin Loizides**
- **Other detectors at LHC? LHCb?**
- **Do we want to add something about forward coverage at future accelerators?**