



INT Program on EIC Physics, INT-18-3 Oct. 1- Nov. 16, 2018



- **Probing Nucleons and Nuclei in High Energy Collisions (INT-18-3)**
October 1 - November 16, 2018 -
Y. Hatta, Y. Kovchegov, C. Marquet, A. Prokudin
- **Institute for Nuclear Theory, Seattle, WA**

OCTOBER 1 - NOVEMBER 16, 2018 • SEATTLE, WASHINGTON

PROBING NUCLEONS AND NUCLEI IN HIGH ENERGY COLLISIONS

Dedicated to the Physics of the Electron Ion Collider

Program held at the Institute for Nuclear Theory, supported by the US Department of Energy

<http://www.int.washington.edu/PROGRAMS/18-3>

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PROGRAM STRUCTURE

Week 1 October 1-5	Week 2 October 8-12	Week 3 October 15-19	Week 4 October 22-26	Weeks 5 & 6 Oct. 29-Nov. 9	Week 7 November 12-16
Generalized parton distributions	Transverse spin and TMDs	Longitudinal spin	Symposium week	eA collisions	pA and AA collisions
<i>Conveners:</i> Tanja Horn Andreas Metz Christian Weiss	<i>Conveners:</i> Harut Avakian Alessandro Bacchetta Daniel Boer Zhongbo Kang	<i>Conveners:</i> Elke Aschenauer Keh-Fei Liu Cécile Lorcé Marco Stratmann	A five-day symposium will be held during the central week, covering all the major topics related to the EIC.	<i>Conveners:</i> Giovanni Chirilli Charles Hyde Anna Stasto Thomas Ullrich Bowen Xiao	<i>Conveners:</i> Adrian Dumitru François Gelis Tuomas Lappi Yacine Mehtar-Lani

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Gluons and the quark sea at high energies: distributions, polarization, tomography

September 13 to November 19, 2010

Report from the INT program "Gluons and the quark sea at high energies: distributions, polarization, tomography"

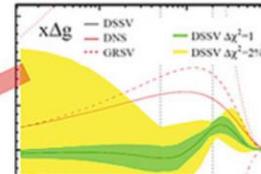
2012 White paper

2010 INT program

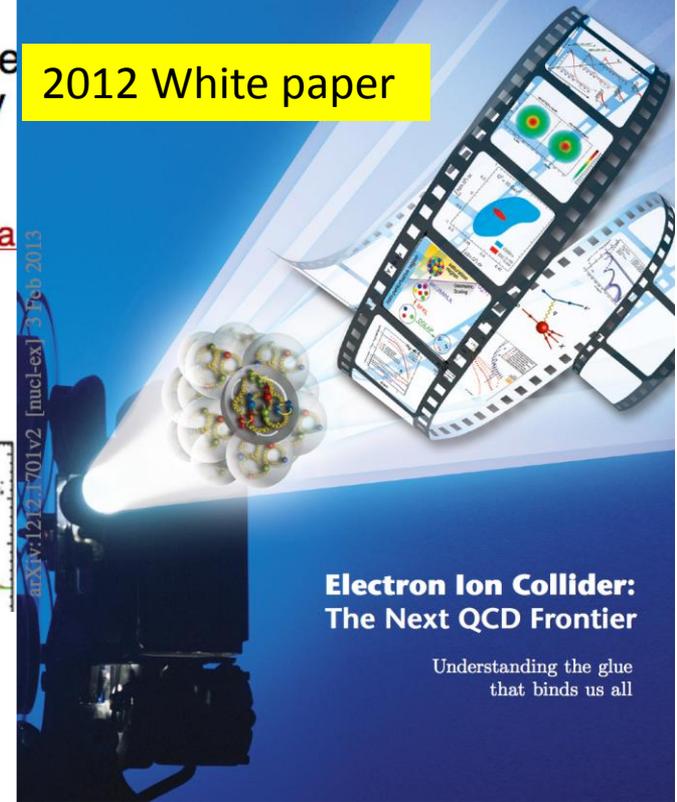
o small x uncertainty from DSSV

$$\frac{dg_1}{d \log(Q^2)} \propto -\Delta g(x, Q^2)$$

4 *translates into*



arXiv:1212.701v2 [nucl-ex] 3 Feb 2013



**Electron Ion Collider:
 The Next QCD Frontier**

Understanding the glue
 that binds us all

REACHING FOR THE HORIZON

2015 Long Range Plan



The 2015
LONG RANGE PLAN
 for NUCLEAR SCIENCE



An Assessment of U.S.-Based Electron-Ion Collider Science

“The committee finds that the science that can be addressed by an EIC is compelling, fundamental and timely.”

2018 NAS report

2018 INT workshop

<http://www.int.washington.edu/PROGRAMS/18-3/>

Goal: assess the current status of the EIC-related physics (theory/phenomenology), with the aim of laying the groundwork for another EIC White Paper, to be presented in preparation to the next NSAC Long Range plan.

	# of participants
Week 1 (October 1-5) : Generalized parton distributions Conveners: Tanja Horn , Andreas Metz , Christian Weiss	25
Week 2 (October 8-12) : Workshop on Transverse spin and TMDs Harut Avakian , Alessandro Bacchetta , Daniel Boer , Zhongbo Kang	37
Week 3 (October 15-19) : Longitudinal spin Elke Aschenauer , Keh-Fei Liu , Cedric Lorce , Marco Stratmann	26
Week 4 (October 22-26) : Symposium week	35
Weeks 5 & 6 (October 29-November 9) : eA collisions Giovanni Chirilli , Charles Hyde , Anna Stasto , Thomas Ullrich , Bowen Xiao	22 & 25
Week 7 (November 12-16) : pA and AA collisions Adrian Dimitru , Francois Gelis , Tuomas Lappi , Yacine Mehtar-Tani	25

2018 INT Program

- Currently we have 123 people registered for the program (including 4 organizers and ~20 conveners). Mainly theorists, but with a healthy number of experimentalists.
- The program is 7 weeks long – a bit shorter than the 2010 program which was 10 weeks long. Hence we have a slightly faster pace.
- The program received generous support from JLAB and BNL with each of the labs supporting most of their participants.
- Wiki pages for each week to document discussions, to be maintained by conveners https://wiki.bnl.gov/EIC2018/index.php/Main_Page
- Talks will be broadcasted (remote participation by Zoom), recorded and posted (if the speaker permits) <https://zoom.us/j/9821312855>

Plans

- Ultimately will put together “proceedings”, post them on the arXiv and publish them too.

Discussions

- Tuesday – new machines
- Thursday – open issues no-host discussion, please prepare 1-2 slides if you want to discuss anything
- Friday – future directions no-host discussion, please prepare 1-2 slides if you want to discuss anything
- Monday, Wednesday – if need be