**Preparation for the CUA EIC workshop Wed-Fri this week:**

As part of the upcoming CUA meeting, we have been asked to give a 15+15 min presentation on our detector requirements as well as the status of ongoing analyses.

Slides on the detector requirements are largely in place and follow what is presented on the wiki page but we need a summary of ongoing activity.

**Could everyone working on an analysis please send me (Brian) a couple lines describing their current status, i.e. what still needs to be done, the timeframe for completion, aspects of the detector matrix which may be impacted, etc.**

Please send this along by COB today so there is time to integrate everything into the talk.

# Yellow Report Outline - Chapter 7. The EIC Measurements and Studies

*Collected sub-group input goes here. The physics working group is organized according to processes but a matrix exists (or should exist) that maps physics topics to processes. In this chapter any contributions the EIC User Group is working on triggered by the Yellow Report are organized by physics topic. The idea here is not to repeat the White Paper but to leave the community opportunity for key measurements to be studied in more detail with focus on requirements. These studies should be described here. Physics motivation should be kept very short for WP topics. New topics can have a slightly more detailed text. The list of topics that defines the subsection was taken from the MIT meeting and will have to be adjusted to what studies were at the end actually done of course.*

## 7.1 Global Properties and Parton Structure of Hadrons

- 7.1.1 Unpolarized parton structure of the proton and neutron (Renee Fatemi, Nobuo Sato, Barak Schmookler, Ernst Sichtermann)
- 7.1.2 Spin structure of the proton and neutron (Renee Fatemi, Brian Page, Frank Petriello, Nobuo Sato, Ralf Seidl, Ernst Sichtermann, Daria Sokhan)
- 7.1.3 Parton structure of mesons (Wim Cosyn)
- 7.1.4 Origin of the mass of the nucleon and mesons (Barbara Pasquini)
- 7.1.5 Multi-parton correlations (Anselm Vossen)
- 7.1.6 Inclusive diffraction and rapidity gap physics (Anna Stasto)
- 7.1.7 Global event shapes and the strong coupling constant (Leticia Mendez)

## 7.2 Multi-Dimensional Imaging of Nucleons, Nuclei and Mesons

- 7.2.1 Nucleon and meson form factors (Douglas Higinbotham)
- 7.2.2 Imaging of quarks and gluons in position space (Salvatore Fazio, Barbara Pasquini, Daria Sokhan)
- 7.2.3 Imaging of quarks and gluons in momentum space (Ralf Seidl, Alexey Vladimirov, Anselm Vossen, Bowen Xiao)
- 7.2.4 Wigner functions (Salvatore Fazio, Barbara Pasquini)
- 7.2.5 Light (polarized) nuclei (Wim Cosyn, Raphäel Dupré, Or Hen, Douglas Higinbotham)

# Yellow Report Outline - Chapter 7. The EIC Measurements and Studies (continued)

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## 7.3 The Nucleus: A Laboratory for QCD

- 7.3.1 High parton densities and saturation (Tuomas Lappi, Bowen Xiao)
- 7.3.2 Diffraction (Tuomas Lappi, Anna Stasto)
- 7.3.3 Nuclear PDFs (Renee Fatemi, Salvatore Fazio, Nobuo Sato, Barak Schmookler, Ernst Sichtermann)
- 7.3.4 Particle propagation through matter and transport properties of nuclei (Raphäel Dupré, Ivan Vitev)
- 7.3.5 Collective effects (shadowing, anti-shadowing, ridge, other emergent phenomena) (Tuomas Lappi)
- 7.3.6 Special opportunities with jets and heavy quarks (Ivan Vitev)
- 7.3.7 Short-range correlations, origin of nuclear force (Or Hen, Douglas Higinbotham)
- 7.3.8 Structure of light nuclei (Wim Cosyn, Raphäel Dupré, Or Hen)
- 7.3.9 Coherent and incoherent photoproduction on heavy targets (Spencer Klein)

## 7.4 Understanding Hadronization

- 7.4.1 Hadronization in the vacuum (Brian Page, Ralf Seidl, Anselm Vossen)
- 7.4.2 Hadronization in the nuclear environment (Brian Page, Ralf Seidl, Ivan Vitev)
- 7.4.3 Particle production for identified hadron species
- 7.4.4 Production mechanism for quarkonia and exotic states (Spencer Klein, Justin Stevens, Ivan Vitev)
- 7.4.5 New particle production mechanisms (Spencer Klein)
- 7.4.6 Spectroscopy (Justin Stevens)

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## 7.5 Connections with Other Fields

- 7.5.1 Electro-weak physics (Nobuo Sato)
- 7.5.2 BSM physics (Ciprian Gal, Krishna Kumar, Sonny Mantry)
- 7.5.3 Neutrino physics (Shunzo Kumano, Roberto Petti)
- 7.5.4 Cosmic ray/astro-particle physics (Spencer Klein)
- 7.5.5 Other connections to pp, pA, AA (Tuomas Lappi, Thomas Ullrich, Bowen Xiao)
- 7.5.6 Lattice QCD (Martha Constantinou, William Detmold, Sergey Syritsyn)
- 7.5.7 Snowmass Process (Abhay Deshpande, Pavel Nadolsky)
- 7.5.8 Radiative corrections at the EIC (Jan Bernauer)

Next request focuses on topical (sub-)substructure - *“which studies go where?”*

**Input requested and continued discussion next WG meeting.**