

# **Jets and Heavy Quarks Working Group**

**March 9, 2020**

# Jets and Heavy Quarks Working Group

EIC Physics and Detector Conceptual Development effort / Yellow Report:

- sharpen understanding of measurements and instruments,
- opportunity to peek beyond “the baseline”

Three main working groups:

- **Physics Working Group**
- **Detector Working Group**
- **Accelerator Working group**

Physics Working Group:

- Inclusive reactions
- Semi-inclusive reactions
- **Jets, Heavy Quarks**
- Exclusive reactions
- Diffractive reactions & tagging

Note, however, that the Yellow Report will not (likely) be organized along processes;  
<http://www.eicug.org/web/content/yellow-report-initiative> has the outline.

~12 month effort with four workshops

First workshop “at” Temple University upcoming March 19-21, c.f. <http://eicug.org>

*Goal: present progress for various groups and sub-groups, with much discussion and work time, initiate detector complementarity study based on detector technologies.*

Note: This meeting will proceed, but presumably be remote only (COVID-19)

Subsequent workshops, (August - EICUG mtg.), September, November.

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Suggest to organize our work along proposed measurements:

1. Spin physics with jets –  $A_{LL}$ , Sivers function [nucleon and nuclear structure]
2. Inclusive jets and jet substructure, charged-current reactions, EW structure functions [FF $_S$ , shapes, EW structure functions]
3. GammaJet+jet, lepton-jet, di-jet correlations [TMD constraints, broadening in e+A]
4. D and B meson cross sections, modification in e+A [energy loss, hadronization]
5. Heavy flavor jet cross sections, modification and substructure in e+A, charm  $F_2$  [transport properties of nuclei, QCD in matter, N charm content]
6. Angularities, n-jettiness [extraction of  $\alpha_S$ ]

Input sought and welcome!

Coordination/overlap with inclusive and semi-inclusive physics working groups, tracking, calorimetry, PID, integration detector w.g. simulations (!)