First EF05 Discussion on LOIs

Thank you all, for submitting many interesting Letters of Interest!

The full list can be found on this website: https://snowmass21.org/loi

LOIs flagged as primary EF05

- Perspectives for high-precision $\alpha_S(m^2_Z)$ determinations from future e^+e^- measurements at the FCC-ee (200)
- Precision measurements of α_S and its running at future colliders (217)
- Recommendations for more precise and robust assessment of experimental and systematic QCD uncertainties (219)
- Are Jets Universal? (220)
- Recommendations for better measurements of multi-parton interactions and the underlying event (212)
- Recommended benchmark measurements of hadron spectra, etc., to constrain non-perturbative QCD physics (213)
- An assessment of the strengths and weakness of existing MC event generators (214)
- Assessment of what can be learned from neutrino scattering data for non-perturbative physics (215)
- Uncertainties in perturbative QCD calculations and Monte-Carlo simulations (231)
- Uncertainties in simulations of non-perturbative QCD effects (232)
- Lattice-QCD Determinations of Quark Masses and theStrong Coupling α_s(257)
- High-precision $\alpha_S(m^2_Z)$ determinations from future FCC-ee $e^+e^-\rightarrow$hadrons data below the Z peak(208)
- A Very Forward Hadron Spectrometer for the LHC (087)
- Gluon Saturation at the Electron Ion Collider (168)
- Higher twist effects in inclusive and diffractive nuclear structure functions (076)
- New frontiers in PDF analyses in the HL-LHC era (146)
- Snowmass LOI Les Houches Wishlist: placeholder (206))
- Exclusive Z decays (091)
- Jets and Jet Substructure at Future Colliders (140)
- EW and BSM physics at EIC (210)
- Forward jets and dense systems (025)

LOIs flagged as secondary EF05

- Toward the N3LO accuracy of parton distribution functions (268)
- PDFs, α_S and Low-x Physics and at Future DIS Facilities (174)
- Jets and jet substructure in heavy-ion collisions (195)
- Forward Physics Facility (193)
- Numerical Lattice Gauge Theory (017)
- Emerging Computational Techniques for Jet Physics (046)
- Precise predictions for Higgs pair hadroproduction (127)
- Generative, Explainable Artificial Intelligence for Nuclear Physics and HEP (189)
- Letter of Intent: A Forward Calorimeter at the LHC (148)
- Measurement of the W mass and width at FCC-ee (166)
- Unitarity of CKM Matrix,|Vud|, Radiative Corrections and Semi-leptonic Form Factors (249)
- Probing Scalar and Tensor Interactions at the TeV Scale (192)
- EFT Analysis of the VVV process:a Letter of Interest for Snowmass 2021 (233)
- xFitter: An Open Source QCD Analysis Framework (040)
- The Femtography Project (159)
- Discovery potential of all-hadronic searches for vector-like quarks at future colliders (186)
- Probing High Scale Physics via Standard Model Parameters (012)
- Cold QCD Matter at High Densities (225)
- Constraining Physics Beyond the Standard Model using Electric Dipole Moments (230)
- Precision Lattice QCD in Support of BSM Searches (047)
- Using lattice QCD for the hadronic contributions to themuong−2 (103)
- Bottom quark mass (262)
- Particle production and correlations in dilute-dense collisions in the CGC framework: finite-width target effects (270)
- Origin of Nuclear Shadowing and Antishadowing (267)

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Today, we plan to discuss the path forward, leading from expressions of interest to white papers and the final Snowmass report. In the coming weeks, we will devote one EF05 meeting per week to each of the big themes that have emerged, with the aim to connect people with similar interests.

Today: Discussion of LOIs related to α_S determination

Primary EF05

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Secondary EF05

- PDFs, α_S and Low-x Physics and at Future DIS Facilities (174)

People involved

Fermilab Lattice, MILC, and TUMQCD Collaborations, The LHeC/FCC-eh PDF & Low x Study Group, S. Amoroso, N. Armesto, R. Ball, A. Banfi, M. Begel, S. Bhattacharya, A. Blondel, D. Boito, D. Britzger, D. d'Enterria, M. Feickert, S. Forte, M. Golterman, A. Grohsjean, C. Gwenlan, A. Hoang, S. Hoeche, J. Huston, P. Janot, A. Kardos, M. Klein, S. Kluth, A. Kotikov, M. LeBlanc, B. Malaescu, K. Maltman, M. Mangano, S. Marzani, CH McLean, S.-O. Moch, P.-F. Monni, B. Nachman, P. Nadolsky, P. Newman, A.-V. Nesterenko, F. Olness, E. Perez, R. Pérez-Ramos, S. Peris, S. Plaetzer, F. Ringer, J. Rojo, J. Roloff, M. Schmitt, R.Sommer, G. Somogyi, A. Stasto, Z. Szoer, Z. Trocsanyi, Z. Tulipant, A. Verbitskyi, M. Vos, G. Zanderighi

This list is likely incomplete. Please let us know if you are interested and would like to participate in the studies. Please also indicate if you would like to lead a study.

Suggestions for further organization

- The formation of subgroups within topical groups is discouraged
- We plan instead to have task groups concerned with a particular topic (related to an LOI or a set of LOIs)
- These task groups will ideally be led by a duo of a more junior and a more senior member of the community
- Between now and July 2021, we will stay in touch with the various task forces through the EF05 group meetings