

Status of the IPa workshop preparation

- Timeline
- Timetable
- Collaboration / work in preparation











Precision at hadron colliders

- Workshop held Nov.25 – Dec.6, 2019
 - Mon – Tue PDFs (present and future constraints)
 - Wed – Thu EW (measurements and fits)
 - Fri low-Q² inputs to EWSB
 - Mon – Tue Higgs / high-energy
 - Wed – Fri Interpretation

Timetable (PDF and EW sessions)

14:00	→ 16:00	PDFs: Long talk & Discussion	
Conveners: Jan Kretzschmar (University of Liverpool (GB)), Katerina Lipka (Deutsches Elektronen-Synchrotron (DE)), Maria Ubiali			
14:00		Towards high-precision PDFs : Experimental perspectives	1h
15:00		Towards high-precision PDFs : Theory vision	1h
Speaker: Dr Lucian Harland-Lang (University of Oxford)			
16:00	→ 16:30	Coffee break	30m
16:30	→ 18:30	Informal discussions: 1	
TUESDAY, 26 NOVEMBER			
09:00	→ 18:25	PDFs: Topical presentations	
Conveners: Jan Kretzschmar (University of Liverpool (GB)), Katerina Lipka (Deutsches Elektronen-Synchrotron (DE)), Maria Ubiali			
09:00		PDFs from EIC and impact in LHC kinematics	20m
Speaker: TIMOTHY J HOBBS (Southern Methodist University)			
09:20		PDFs from LHeC and impact in LHC kinematics	20m
09:40		PDF prospects at HL-LHC	20m
10:00		Compatibility of experimental constraints in precise QCD analyses	20m
Speaker: Pavel Nadolsky (Southern Methodist University)			
10:20		coffee break	20m
10:40		Correlations of PDFs, a_s and m_q in QCD analyses	20m
11:00		Treatment of theory uncertainties in the PDFs	20m
Speaker: Cameron Voisey (University of Cambridge)			
11:20		Open-source tool for QCD analysis	20m
11:40		Recent Progress in Theory tools for QCD analysis (ApplFast etc)	20m

Timetable (PDF and EW sessions)

12:00	lunch break	🕒 1h 30m
13:30	SMEFT fit to HERA data	🕒 20m 
13:50	PDFs and SMEFT interplay Speaker: Shayan Iranipour (University of Cambridge)	🕒 20m 
14:10	Combined fits PDF+EW parameters	🕒 20m 
14:30	Forward LHC data in QCD analyses	🕒 20m 
14:50	coffee break	🕒 20m
15:10	Global PDF News : CT18	🕒 20m 
15:30	Stable covariance matrices for PDF fits	🕒 20m 
15:50	EW corrections in PDF fits & photon PDF Speaker: Christopher Schwan	🕒 20m 
16:10	coffee break	🕒 20m
16:30	Prospects for PDF combination and benchmarks	🕒 20m 
16:50	Correlations among global PDFs: toy data results	🕒 20m 
17:10	Parton Distribution Functions from Lattice QCD Speaker: Savvas Zafeiropoulos	🕒 20m 

Timetable (PDF and EW sessions)

WEDNESDAY, 27 NOVEMBER		
09:00 → 11:00	Measurements of EW precision observables Conveners: Alessandro Vicini (Università degli Studi e INFN Milano (IT)), Mika Anton Vesterinen (University of Warwick (GB)), Ulla Blumenschein (University of London (GB))	
09:00	Relevance of precision measurements for the global EW fit	🕒 1h
10:00	Measurement of m_W : experimental and theoretical requirements	🕒 1h
11:00 → 11:30	Break	🕒 30m
11:30 → 12:30	Measurements of EW precision observables Conveners: Alessandro Vicini (Università degli Studi e INFN Milano (IT)), Mika Anton Vesterinen (University of Warwick (GB)), Ulla Blumenschein (University of London (GB))	
11:30	Measurement of $\sin^2\theta_W$: experimental and theoretical requirements	🕒 1h
12:30 → 14:00	Lunch	🕒 1h 30m
14:00 → 18:00	Informal discussions: 2	
20:00 → 22:00	Dinner	

Timetable (PDF and EW sessions)

THURSDAY, 28 NOVEMBER		
09:00 → 12:00	Measurements of EW precision observables: QCD issues in the high-precision determination of EW parameters	
	Conveners: Alessandro Vicini (Università degli Studi e INFN Milano (IT)), Mika Anton Vesterinen (University of Warwick (GB)), Ulla Blumenschein (University of London (GB))	
09:00	Experimental challenges: high- vs low-pileup measurements	🕒 25m
09:25	Sensitivity to hadronic uncertainties of individual observables	🕒 25m
09:50	Revisiting the estimate of PDF uncertainties	🕒 25m
10:15	Coffee Break	🕒 20m
10:35	Ultimate QCD tools	🕒 25m
11:00	Estimate of theoretical QCD uncertainties on EW parameters	🕒 25m
14:00 → 17:00	Measurements of EW precision observables: Towards a global EW fit	
	Conveners: Alessandro Vicini (Università degli Studi e INFN Milano (IT)), Mika Anton Vesterinen (University of Warwick (GB)), Ulla Blumenschein (University of London (GB))	
14:00	Combination of MW / sin2theta final values obtained at different colliders/experiments	🕒 25m
14:25	Global EW fits: experimental and theoretical issues	🕒 25m
14:50	Towards fully NLO-EW analyses	🕒 25m

Work in preparation

- Progress on resummation corrections to fiducial cross sections
(cf. Johannes's talk yesterday)
- Revive studies of NLO EW corrections in W production
 - Especially comparing QED corrections with pure FSR
- Uncertainty breakdown – matching BLUE and PLR
 - Important for the evaluation of correlations between measurements done using different approaches
 - Correlations between measurements are important as they affect fits downstream
- EW fit exercises including experimental correlations
- ...