

Hall B – Run Groups

HALL B

Proposal	Physics	Contact	Rating	Days	Group	New equipment	Energy	Run Group	Target
E12-06-108	Hard exclusive electro-production of π^0, η	Stoler	B	80	139	RICH (1 sector) Forward tagger	11	A F. Sabatié	liquid H ₂
E12-06-108A	Exclusive N*->KY Studies with CLAS12	Carman		(60)					
E12-06-108B	Transition Form Factor of the η' Meson with CLAS12	Kunkel		(80)					
E12-06-112	Proton's quark dynamics in SIDIS pion production	Avakian	A	60					
E12-06-112A	Semi-inclusive Λ productioun in target fragmentation region	Mirazita		(60)					
E12-06-112B	Colinear nucleon structure at twist-3	Pisano		(60)					
E12-06-119(a)	Deeply Virtual Compton Scattering	Sabatie	A	80					
E12-09-003	Excitation of nucleon resonances at high Q ²	Gothe	B+	40					
E12-11-005	Hadron spectroscopy with forward tagger	Battaglieri	A-	119					
E12-11-005A	Photoproduction of the very strangest baryon	Guo		(120)					
E12-12-001	Timelike Compton Scatt. & J/ψ production in e+e-	Nadel-Turonski	A-	120					
E12-12-007	Exclusive φ meson electroproduction with CLAS12	Stoler, Weiss	B+	60					
E12-07-104	Neutron magnetic form factor	Gilfoyle	A-	30	90	Neutron detector RICH (1 sector) Forward tagger	11	B K. Hafidi	liquid D ₂ target
E12-09-007(a)	Study of partonic distributions in SIDIS kaon production	Hafidi	A-	30					
E12-09-008	Boer-Mulders asymmetry in K SIDIS w/ H and D targets	Contalbrigo	A-	56					
E12-09-008A	Hadron production in target fragmentation region	Mirazita		(60)					
E12-09-008B	Colinear nucleon structuer at twist-3	Pisano		(60)					
E12-11-003	DVCS on neutron target	Niccolai	A	90					
E12-11-003A	In medium structure functions, SRC, and the EMC effect	Hen		(90)					
Beam time partial sum				765 (1355)	229				

Experiment ending with A or B are run group experiments approved by the CLAS collaboration. They are running parallel to the experiments with same experiment number. Experiments ending with (a) and (b) take data with both run groups.

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E12-06-109	Longitudinal Spin Structure of the Nucleon	Kuhn	A	80	185	Polarized target RICH (1 sector) Forward tagger	11	C S. Kuhn	NH ₃ ND ₃
E12-06-109A	DVCS on the neutron with polarized deuterium target	Niccolai		(60)					
E12-06-119(b)	DVCS on longitudinally polarized proton target	Sabatie	A	120					
E12-07-107	Spin-Orbit Correl. with Longitudinally polarized target	Avakian	A-	103					
E12-09-007(b)	Study of partonic distributions using SIDIS K production	Hafidi	A-	80					
E12-09-009	Spin-Orbit correlations in K production w/ pol. targets	Avakian	B+	103					
E12-06-106	Color transparency in exclusive vector meson production	Hafidi	B+	60	60		11	D	
E12-06-117	Quark propagation and hadron formation	Brooks	A-	60	60		11	E	Nuclear
E12-06-113	Free Neutron structure at large x	Bueltman	A	42	42	Radial TPC	11	F	Gas D ₂
E12-14-001	EMC effect in spin structure functions	Brooks	B+	55	55	Pol. LiH target	11	G	LiH
TOTAL CLAS12 run time (approved experiments)				1466 (2118)	631				

Proposal	Physics	Contact	Rating	Days	Group	Equipment	Energy	Group	Target
C12-11-111	SIDIS on transverse polarized target	Contalbrigo	A	110	110	Transverse target	11	H	HD
C12-12-009	Transversity w/ di-hadron on transvere target	Avakian	A	110					
C12-12-010	DVCS with transverse polarized target in CLAS12	Elouadrhiri	A	110					
All CLAS12 transverse target proposals				330	110				
E12-11-006	Heavy Photon Search at Jefferson Lab (HPS)	Jaros	A	180	180	Setup in alcove	2.2, 6.6	I	Nuclear
E12-11-106	High Precision Measurement of the Proton Charge Radius	Gasparian	A	15	15	Primex	1.1, 2.2	J	H2 gas
Beam time request from CLAS12 C1 experiments + non-CLAS12 experiments				525	305				
Beam time from approved CLAS12 experiments (from previous table)				1466 (2118)	631				
Beam time for Hall B experiments table 1 + table 2 (incl. 110 days of C1 approved exp.)				1991 (2643)	936				

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Proposal	Physics	Contact	Rating	Days	Group	Equipment	Energy	Group	Target
E12-16-010	A search for Hybrid Baryons in Hall B with CLAS12	D'Angelo	A-	(100)	100	Forward Tagger	6.6, 8.8	K Confinement & Strong QCD	IH2
E12-16-010A	Nucleon Resonances in exc. KY electroproduction	Carman	A-	(100)					
E12-16-010B	DVCS with CLAS12 at 6.6 and 8.8 GeV	Elouadrhiri	A-	(100)					
Total Beam time of Run Group K				100 (300)	100				
Beam time of approved & C1 approved CLAS12 experiments from table 1 + table 2				1991 (2643)	936				
Beam time for Hall B experiments table 1 + table 2 + table 3				2091 (2943)	1036				

Proposal Count	Experiment Days	Run Groups	RG days	Compression
37	2943	11	1036	0.35

In the BOAW we expect experiment schedule:

- 35 weeks per year $\approx 35/2 = 17.5$ PAC weeks = 122.5 PAC days
- With 0.8 Hall multiplicity $\Rightarrow 122.5 \times 0.8 = 98$ PAC days
- To run 2943 PAC days of individual experiments = 30 years
- Run 2943 PAC days as run groups = $1036/98 = 10.5$ years

Scheduling considerations

HALL B

Assuming all ERR reviews have been passed and beam time requested

- Experiment with hydrogen target to run first to understand detector responses, calibrations
- Provide all Run Groups with significant amount of data during first 5 years
 - => schedule ~50% of total approved Run Group days
- Scientific ratings by the PAC
- Schedule **High Impact** experiments early (PAC41)
- Compatibility with energies used in other Halls
- Benefit to collaboration
- Operating luminosity
- Jeopardy process
- Final scheduling done in NPES committee

PAC41 - High Impact Experiments

Hall B High Impact (H.I.) experiments: **195** PAC days

PRad: **15**

HPS: **39**

BONUS: **21 (*)**

HDIce: **110**

TMD(p): **10**

DVCS(d): **90 (**)**

(*) : **42** if it runs before $^3\text{H}/^3\text{He}$

(**) : H.I. if HDIce delayed

PAC Days

Boldface = days designated High Impact

Parentheses = days not counting toward High Impact total

PAC41 "High Impact" Selection

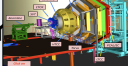
Row Color

Yellow = High Impact

Green = backup expt

Exp#	Exp name	Hall	Run Group/ Days	PAC Days	PAC grade	Comments	
TOPIC 1 : SPECTROSCOPY							
E12-06-102	GlueX : Mapping the Spectrum of Light Quark Mesons and Gluonic Excitations with Linearly Polarized Photons	D		(120) approved *90	A	GlueX - assumed half commissioning/half physics *plus (30) commissioning days	
TOPIC 2 : FORM FACTORS							
E12-06-101	Measurement of the Charged Pion Form Factor to High Q2	C		52	A	Requires fully commissioned SHMS	
E12-07-109	GEp/GMp : Large Acceptance Proton Form Factor Ratio Meas's at 13 and 15 (GeV/c)2 Using Recoil Polarization Method	A		45	A-	Requires SBS and high power cryo target	
E12-11-106	High Precision Measurement of the Proton Charge Radius	B		15	A	Non-CLAS12 experiment, Prad	
TOPIC 3 : PDFs							
E12-06-113	BONuS : The Structure of the Free Neutron at Large x-Bjorken	B	F/40	(40) approved *21 ↓	A	Requires BONuS Radial TPC upgrade *42 days High Impact for the experiment	
E12-10-103	MARATHON : Measurement of the F2n/F2p, d/u Ratios and A=3 EMC Effect in DIS off the Tritium and Helium Mirror Nuclei	A	Tritium target group/61	↑ *21 (42) approved	A	that runs first; experiments are equally important & both are essential	
E12-06-110	A1n HallC-3He : Meas of Neutron Spin Asymmetry A1n in the Valence Quark Region Using an 11 GeV Beam and a Polarized 3He Target in Hall C	C		36	A	Requires high luminosity 3He	
TOPIC 4T : TMDs							
C12-11-111	TMD CLAS-HDICE : SIDIS on Transverse polarized target	B	G/110	110 concurrent	A	Requires transversely polarized HDIce with electron beam	
C12-12-009	Dihadron CLAS-HDICE : Measurement of transversity with dihadron production in SIDIS with transversely polarized target	B	G/110	(110) concurrent	A	Requires transversely polarized HDIce with electron beam C1 Proposal	
E12-06-112	TMD CLAS-H(Unpol) : Probing the Proton's Quark Dynamics in Semi-Inclusive Pion Production at 12 GeV	B	A/139	(60) approved *10	A	Hall B commissioning + 10 days *plus (50) commissioning days	
TOPIC 4G : GPDs							
E12-06-114	DVCS HallA-H(UU,LU) : Measurements of Electron-Helicity Dependent Cross Sections of DVCS with CEBAF at 12 GeV	A	Early DVCS & GMP/62	(100) approved *70	A	Hall A commissioning	
C12-12-010	DVCS CLAS-HDICE : DVCS at 11 GeV with transversely polarized target using the CLAS12 Detector	B	G/110	(110) concurrent	A	Requires transversely polarized HDIce with electron beam C1 Proposal	
E12-11-003	DVCS CLAS-D(UU,LU) : DVCS on the Neutron with CLAS12 at 11 GeV	B	B/90	(90) approved	A	Requires D target, central neutron detector ready in 2016 *Backup GPD-E meas if HDIce delayed	
TOPIC 5 : NUCLEAR							
E12-13-005	Bubble Chamber : Measurement of 16O(γ,±)12C with a bubblechamber and a bremsstrahlung beam	INJ		14	A-	Our guess: 2017	
E12-11-101	PREX-II : Precision Parity-Violating Measurement of the Neutron Skin of Lead	A		35	A	Requires septum, Pb target, 1% Moller polarimetry	
E12-06-106	SRC-hiX : Inclusive Scattering from Nuclei at $k > 15$ in the quasielastic and deeply inelastic regimes	C		32	A-		
E12-11-112	SRC-Tritium : Precision measurement of the isospin dependence in the 2N and 3N short range correlation region	A	Tritium target group/61	19	A-		
TOPIC 6 : FUNDAMENTAL SYMMETRIES							
E12-11-008	HPS : Status of the Heavy Photon Search Experiment at Jefferson Laboratory (Update on PR12_11_006)	B	H/180	(155) approved *39	A	non-CLAS12 experiment, HPS *25 pre-CLAS engr + 14 physics @ 4.4 GeV	
E12-10-009	APEX : Search for new Vector Boson A1 Decaying to e+e-	A		34	A	Requires new septum and target system	
<<< SUMMARY of "HIGH IMPACT" DAYS >>>							
by Topic	1	2	3	4GT	5	6	total post-commissioning
	90	112	78	190	100	73	643
by Hall	A	B	C	D	INJ		
	224	195	120	90	14		643

Possible RG Schedule (straw man)

Run Group	Days	2016	2017	2018	2019	2020	2021	2022	Remain
All Run Groups	1036#)	30	15	95	106	105	105	105	456
HPS 	180*	15		35	10	10	10	10	90
PRad 	15*	15							0
CLAS12 Comm 			3 30						0
RG-A + RG-K (proton)	239*		10	20/15 25		30	25		114*
RG-B (deuteron)	90*				45				45*
RG-F (BoNuS)	42*				21				21
RG-C (NH ₃)	120				30	30			60
RG-C-b (ND ₃)	65					35			30
RG-E (Hadr.)	60						35		25
RG-H (Transv. Target)	110*						35	25	50
RG-D (CT)	60							35	25
RG-G (LiD)	55							35	20
#) incl. RG-H									

