

Table 11.2: List of test-beam facilities in the world, as of May 2019. Only beam lines with beams of energies higher than 100 MeV are included [Courtesy of C. Rembser and H. Wilkens].

Laboratory	Number of beam lines	Particles	Energy	Availability
CERN/PS (CH)	2	e, h, μ (sec.)	0.5 - 10 GeV	9 months/year continuous
CERN/SPS (CH)	4	p (prim.) e, h, μ (sec.) e, h (tert.) Pb ions (prim.) other ion species (out of fragmented primary Pb ions)	400 GeV 10-400 GeV 10-200 GeV 20-400 GeV proton equiv. ($z=1$)	continuous except winter shutdown, typical duty cycle PS ~ 1-3% SPS 20-40%
DAFNE BTF Frascati (IT)	2	e^+ / e^- both prim. and sec.	25-750 MeV Rep. rate 50 Hz 1-40 ns $1 - 10^{10}$ part./pulse	typically 25-35 weeks/year
DESY (D)	3	e^+, e^- (sec.)	1-6 GeV max 100 kHz	11 months/year, duty cycle ~ 50%
ELPH (Sendai) (JP)	2	γ (tagged) e^+, e^- (conv.)	0.7-1.2 GeV 0.1-1.0 GeV rate < 500 kHz (typ. 2 kHz)	2 months/year
FERMILAB FTBF (US)	2	p (prim.) e, h, μ (sec.) h (tert.)	120 GeV 1-66 GeV 200-500 MeV	24 hrs/day, duty cycle 6%
IHEP (Beijing) (CH)	2	e (prim.) e (sec.) p, π (sec.)	1.1-2.5 GeV 100-300 MeV 0.4-1.2 GeV	3 months/yr, duty cycle depends on BEPCII operation mode
IHEP (Protvino) (RU)	5	p (prim.) p, K, π, μ, e (sec.) C-12 (prim)	70 GeV 1-45 GeV 6-300 GeV	2 months/yr, duty cycle(U-70 machine) 15-30%
PSI/SBL (CH)	2-4	$\pi^\pm, \mu^\pm, e^\pm, p$	50-450 MeV rate < 10^9 Hz 20 ns structure	6-8 months/yr
PSI/PIF (CH)	1	p	5 - 230 MeV $I_{\max} = 2-5$ nA	11 months/year, typ. weekends
SLAC (US)	0	e (prim.) e (sec.)	2.5-15 GeV 1-14 GeV	9 months/yr, duty cycle 50% [No beam in 2019]
SPRING-8 Compton Facility (JP)	1	γ (tagged) $e^\pm$ (conv.)	1.5-3.0 GeV 0.4-3.0 GeV	>60 days/yr
University of Bonn ELSA (D)	1	e^-	1.2-3.2 GeV rate ~ 500 Hz-1 GHz	upon request, typ. ~ 30 days/yr
Univ. of Mainz MAMI (D)	3	e^- γ	$E_{e^-, \gamma} < 1.6$ GeV $I_e < 100 \mu A$	upon request, typ. ~ 30 days/yr