HICS rate summed over n laser photons





- HICS now summed up to n=10*(1+ ξ^3)
- $\circ~$ For $\xi \geq 2$ significant high energy tail for HICS photons
- These high energy HICS photons go on to make more trident pairs
- JETI40 now reaching 600 trident positrons per bunch crossing at spot size w₀ = 3µm

IPstrong v1.1.00 data sets, update 1/12/2020

- HICS sum (over n laser photons) extended again to Ceiling[10*(1+ ξ^3)]
- Mirroring all data with "provisional" sets, containing HICS fix
- o HICS rate will be larger, there will be more trident positrons

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Experiment Config	$w_0 = 3\mu m$	3.5µm	4.0µm	4.5μm	$5.0 \mu m$	6.5µm	8.0µm	10.0µm	13.0µm	15.0µm	20.0µm	50.0µm	100.0µm
peak SQED ¿	5.12	4.44	3.88	3.45	3.1	2.39	1.94	1.553	1.195	1.04	0.78	0.31	0.15
peak SQED χ (16.5 GeV)	0.9	0.79	0.69	0.61	0.55	0.42	0.34	0.275	0.212	0.183	0.138	0.055	0.028
JETI40 e-laser 16.5 GeV	10000	6000	5994	6000	6000		10000	1000	1000	1000	500	5000	500
JETI40 e-laser 16.5 GeV (prov)	1000	1000	1000	1000	1000	1000	1000						
JETI40 e-laser 16.5 GeV (10§3 prov)	32	399	496	499	500	487	443	499	500	524	519	502	500
JETI40 e-laser 17.5 GeV	1000	1000	1000	1000	1000		1000						
JETI40 e-laser 17.5 GeV (prov)	1000	1000	1000	1000	1000	1000	1000						
JETI40 g-laser 16.5 GeV	5000	2000	2000	2000	2000	2000	2000						
JETI40 g-laser 17.5 GeV													
JETI40 ics-laser 16.5 GeV													
JETI40 ics-laser 17.5 GeV													
JETI40 misalignments													
	pulse shape	$w_0 = 3.0 \mu m$	$w_0 = 4.0 \mu \text{m}$	$w_0 = 5.0 \mu m$	$w_0 = 6.0 \mu \text{m}$	$w_0 = 7.0 \mu \text{m}$	$w_0 = 8.0 \mu \text{m}$	$w_0 = 9.0 \mu \text{m}$	$w_0=10.0\mu{\rm m}$	$w_0 = 11.0 \mu {\rm m}$	$w_0 = 12.0 \mu \mathrm{m}$	$w_0=16.0\mu{\rm m}$	$w_0 = 20.0 \mu m$
peak SQED g	gauss	16.7	12.53	10.03	8.35	7.16	6.27	5.57	5.01	4.56	4.18	3.133	2.506
peak SQED χ (16.5 GeV)	gauss	2.96	2.22	1.78	1.48	1.27	1.11	0.99	0.89	0.81	0.74		
phasell e-laser 16.5 GeV	gauss	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000		
phasell e-laser 16.5 GeV (prov)	gauss	500	500	500	500	500	500	500	500	500	500	500	500
phasell e-laser 16.5 GeV (1053 prov)	gauss												
phasell e-laser 17.5 GeV	gauss	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000		
phasell g-laser 16.5 GeV	gauss	2000	1000	1000	1000	1000	1000	2000	2000	2000	2000		
phasell g-laser 16.5 GeV (prov)	gauss	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
phasell g-laser 17.5 GeV													
phasell OPPP ideal 8.0 GeV	flat	100	100	100	100	100	100		100		100	100	100
phasell OPPP ideal 8.0 GeV	gauss	100	100	100	100	100	100		100		100	100	100
phasell ics-laser 16.5 GeV							1000						
phasell ics-laser 17.5 GeV													
phasell misalignments													

Aug-Nov 2020 Data Runs, bunch/pulse crossings completed

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