

- Nominal bunch charge and beam energy
- Energy spread configurable
- New beamstrahlung input needed ?
- Misalignments can be introduced (μm)
- laser spot considerably smaller ($10\ \mu\text{m}^2$ rather than $100\ \mu\text{m}^2$)
- mCP possible, but not produced if the process is turned off

JETI40 parameter file

```
rotang,17.2          # crossing angle (degrees). zero is head on
bunchchg,1.5d9        # number of particles in the bunch
nTotMeshPts,20,20,1000 # monte carlo mesh units. The z value is imp
Ene,16.5d0            # beam energy (GeV)
EneSpread,0.01        # beam energy spread (fraction)
pdg,11                # pdg number of first particle bunch
sigxyz,5d3,5d3,24d3   # bunch size in sigma xyz (nm)
emitxy,1.4,1.4        # emittance (nm mrad)
msalign,00.000        # misalignment of the two beams (nm)
inpname,"data_lxphotons_w001x0_emittance14_fm_xyze_rndm_sim88106_1.6.txt"
w0,1.78d3             # strong laser (half) spot size (nm)
ICSpeaksep,10.0d3      # for donut and twin peak intense laser fiel
pulseshape,gauss       # gauss, flat, flatTR (flat transverse and l
laslam,800.0d0         # strong laser wavelength (nm)
lasplu,25d-15          # strong laser pulse length (s)
Enelas,0.8            # strong laser energy (Joules)
seedlam,41.79d0        # probe laser, if present
seedlasplu,5d-13       # seed laser pulse length (s)
seedEnelas,2.0d-10    # seed laser energy (Joules)
focusfield,0.0d0      # longitudinal focussing magnetic field
MCPmass,0.002         # milli-charged particle mass (units of e)
MCPcharge,0.0001      # milli-charged particle charge (units of e)
bunchnum,1.0          # t_op=le7 = 0.4 efficiency
hicson,1              # switch for HICS process
oppo,1                # switch for OPPP process
oppoprealon,1         # OPPP process produces real particles (not
scson,0               # switch for second order SCS process
beamstron,0           # switch for beamstrahlung in charged bunch
felon,0               # optical FEL switch, intensity of strong la
mcpon,0               # milli-charged particle switch
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IPstrong, version comparison

- Compare previous and new IPstrong versions
- Benchmark point: pure OPPP, initial gammas
- 1.3×10^8 , 7 GeV
- gather positrons over N=10 bunches
- same no. positrons within statistical error
- Positron spectrum needs further validation

OPPP positrons per bunch

