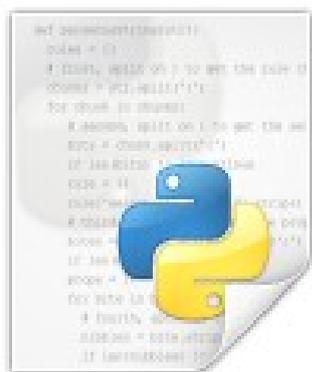


Beam Package for g2p

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You can find code in
\$G2Pworkdisk/codeshare/bpm



bpm.py

**Insert bpm info
to rootfile**



beampackage



`__init__.py`

Initialization file



`bcmconst.py`

Get BCM Constant



`bpmcalib.py`

Calibrate BPM



`bpmfit.py`

Minuit fit for bpm constants



`bpminsert.py`

Insert bpminfo to rootfile



`bpmpeak.py`

Find peak for each bpm antenna



`epicst2v.py`

Read epics from file



`harppos.py`

Read harp scan peak



`odsread.py`

Read openoffice spreadsheet

Database for Beam Package

Saved in \$DB_DIR/pyDB, Make sure you have \$DB_DIR environment!!!



bcm_calibration.ods

BCM Calibration Constant



bpm_5490_1.dat

BPM Calibration Constant, 5490 is the run number used for calibration, 1 means for happex(0 means for fastbus)



bpm_24264_1.dat



runcurr.pkl

Current for each run, machine read only, hard to read for human

Database for Beam Package

```
for happex:1      1 for happex and 0 for fastbus
avail run period:5485 5902  Will support format like 『 5485-5902,5903 』 later
avail curr(nA):100      Available current for calibration constant
bpma survey(position):0.400000 -0.500000 958.100000
bpma survey(angle):0.103600 0.151800 0.045600      BPM Survey Data,
bpmb survey(position):0.400000 -0.300000 692.500000      From Survey Report
bpmb survey(angle):0.110100 -0.137500 -12.305800
target z position(support multi):-15.000000 0.000000 15.000000
run orbits(see Yves orbitsr file):0      For straight through, can define multiple target z
pedestal peak:12942.085120 10295.160589 29984.454273 21035.891849
9290.783185 22872.240041 37352.429563 12218.516516
bpma ar,gx,gy:34.924999999999997 0.706871725914766 0.943301248780548
bpma x a,b,c:-0.895503744326824 0.028538332103938 2.353954466646848
bpma y a,b,c:0.052545638363567 1.032095477658422 0.000488594155368
bpmb ar,gx,gy:34.924999999999997 0.627483877873760 1.228242747218955
bpmb x a,b,c:0.799199958141193 -0.078639230491277 0.737823789270890
bpmb y a,b,c:-0.054969668488379 0.967616669403136 -0.250098090151256
```

Calibration Constant

Database for Beam Package

Calibration Code will automatically download the database from:

<http://hallaweb.jlab.org/experiment/g2p/collaborators/pzhu/wiki/pyDB/>

And will save it to your \$DB_DIR/pyDB directory(will generate pyDB directory automatically)

Will check for update every day

All you need to do:

→ Add beampackage directory into your \$PYTHONPATH environment

→ Run:

`./bpm.py rootfile`

or `./bpm.py runnumber` (need to modify rootfile path in code)

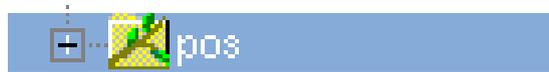
for happex, add "1" at the end of command

can input multiple files

Make sure you have python 2.* installed

Make sure you have pyroot compiled with root

Then the bpm info will insert to your rootfile:



- bpmax
- bpmax_half
- bpmax_half_ave
- targetx_ave_0
- targetx_ave_1
- targetx_ave_2
- bpmax_half_ave
- targety_ave_0
- targety_ave_1
- targety_ave_2
- bpmax_half_ave
- targetx_ave_0
- targetx_ave_1
- targetx_ave_2
- bpmax_half_ave
- targety_ave_0
- targety_ave_1
- targety_ave_2
- bpmax_half_ave
- targetx_ave_0
- targetx_ave_1
- targetx_ave_2
- bpmax_half_ave
- targety_ave_0
- targety_ave_1
- targety_ave_2

BPM pos in bpm coordinate

BPM pos in hall coordinate

Average BPM pos in hall coordinate

Average target pos in hall coordinate (depends on how many target z defined in database)

Will add event by event pos info later, like targetx_%i

A branch named 'pos' will appear in your tree

Todo(for beam package):

- Will update the straight through calibration constant later(3.13 and 5.2,fastbus and happex)
- Will add auto update for code soon
- Will support to deal multiple rootfiles later(*.root.%i)
- Will add raster info and position fit from bpm to target for another configuration with magnet