

# Cheat sheet for pst-optexp (v6.0)

## General component parameters

labeloffset= $\langle num \rangle$   
labelstyle= $\langle macros \rangle$   
labelalign= $\langle refpoint \rangle$   
labelangle= $\langle num \rangle$   
labelref=relative, relgrav, global, absolute  
label= $\langle offset \rangle$  [ $\langle angle \rangle$ ] [ $\langle refpoint \rangle$ ] [ $\langle labelref \rangle$ ]]  
innerlabel=true  
position= $\langle num \rangle$ , start, end  
abspos= $\langle num \rangle$ , start, end  
endbox=true, false  
angle= $\langle pstyle \rangle$   
rotateref= $\langle refpoint \rangle$   
compshift= $\langle num \rangle$   
compoffset= $\langle num \rangle$   
innercompalign=rel, relative, abs, absolute  
OptComp  $\langle pstyle \rangle$   
OptionalStyle  $\langle pstyle \rangle$   
VariableStyle  $\langle pstyle \rangle$   
addtoOptComp= $\langle list \rangle$   
newOptComp= $\langle list \rangle$   
optional=true, false

## Free-ray components

$\backslash lens$  [ $\langle opt \rangle$ ] ( $\langle in \rangle$ ) ( $\langle out \rangle$ ) { $\langle label \rangle$ }

lensheight= $\langle num \rangle$   
lensradiusleft= $\langle num \rangle$   
lensradiusright= $\langle num \rangle$   
lensradius= $\langle left \rangle$  [ $\langle right \rangle$ ]  
lenswidth= $\langle num \rangle$   
lens= $\langle radiusleft \rangle$  [ $\langle radiusright \rangle$ ] [ $\langle height \rangle$ ] [ $\langle width \rangle$ ]]  
thicklens=true, false

$\backslash asphericlens$  [ $\langle opt \rangle$ ] ( $\langle in \rangle$ ) ( $\langle out \rangle$ ) { $\langle label \rangle$ }

asphereheight= $\langle num \rangle$   
aspherewidth= $\langle num \rangle$   
asphereradiusleft= $\langle num \rangle$   
asphereradiusright= $\langle num \rangle$

asphereconstant= $\langle num \rangle$   
aspherecoefficients= $\langle A_4 \rangle$  [ $\langle A_6 \rangle$ ] [ $\langle A_8 \rangle$ ] [ $\langle A_{10} \rangle$ ]]

$\backslash optplate$  [ $\langle opt \rangle$ ] ( $\langle in \rangle$ ) ( $\langle out \rangle$ ) { $\langle label \rangle$ }

plateheight= $\langle num \rangle$   
platelinewidth= $\langle num \rangle$  or  $\langle dimen \rangle$

$\backslash optretplate$  [ $\langle opt \rangle$ ] ( $\langle in \rangle$ ) ( $\langle out \rangle$ ) { $\langle label \rangle$ }

platewidth= $\langle num \rangle$   
platesize= $\langle width \rangle$   $\langle height \rangle$

$\backslash pinhole$  [ $\langle opt \rangle$ ] ( $\langle in \rangle$ ) ( $\langle out \rangle$ ) { $\langle label \rangle$ }

outerheight= $\langle num \rangle$   
innerheight= $\langle num \rangle$   
phlinewidth= $\langle num \rangle$  or  $\langle dimen \rangle$   
phwidth= $\langle num \rangle$

$\backslash optbox$  [ $\langle opt \rangle$ ] ( $\langle in \rangle$ ) ( $\langle out \rangle$ ) { $\langle label \rangle$ }

optboxwidth= $\langle num \rangle$   
optboxheight= $\langle num \rangle$   
optboxsize= $\langle width \rangle$   $\langle height \rangle$

$\backslash optarrowcomp$  [ $\langle opt \rangle$ ] ( $\langle in \rangle$ ) ( $\langle out \rangle$ ) { $\langle label \rangle$ }

arrowcompwidth= $\langle num \rangle$   
arrowcompheight= $\langle num \rangle$   
arrowcompsize= $\langle size \rangle$  or  $\langle width \rangle$   $\langle height \rangle$   
arrowcompangle= $\langle num \rangle$   
arrowcompshape=rectangle, circle  
ArrowCompStyle  $\langle pstyle \rangle$

$\backslash optbarcomp$  [ $\langle opt \rangle$ ] ( $\langle in \rangle$ ) ( $\langle out \rangle$ ) { $\langle label \rangle$ }

barcompwidth= $\langle num \rangle$   
barcompheight= $\langle num \rangle$   
barcompsize= $\langle size \rangle$  or  $\langle width \rangle$   $\langle height \rangle$   
barcompangle= $\langle num \rangle$   
barcompshape=rectangle, circle  
BarCompStyle  $\langle pstyle \rangle$

$\backslash optsource$  [ $\langle opt \rangle$ ] ( $\langle in \rangle$ ) ( $\langle out \rangle$ ) { $\langle label \rangle$ }

sourcewidth= $\langle num \rangle$   
sourceheight= $\langle num \rangle$   
sourcesize= $\langle width \rangle$   $\langle height \rangle$

$\backslash crystal$  [ $\langle opt \rangle$ ] ( $\langle in \rangle$ ) ( $\langle out \rangle$ ) { $\langle label \rangle$ }

crystalwidth= $\langle num \rangle$   
crystalheight= $\langle num \rangle$

crystalsize= $\langle width \rangle$   $\langle height \rangle$   
caxislength= $\langle num \rangle$   
caxisinv=true, false  
voltage=true, false  
lamp=true, false  
CrystalCaxis  $\langle pstyle \rangle$   
CrystalLamp  $\langle pstyle \rangle$

$\backslash optdiode$  [ $\langle opt \rangle$ ] ( $\langle in \rangle$ ) ( $\langle out \rangle$ ) { $\langle label \rangle$ }

optdiodesize= $\langle num \rangle$

$\backslash doveprism$  [ $\langle opt \rangle$ ] ( $\langle in \rangle$ ) ( $\langle out \rangle$ ) { $\langle label \rangle$ }

doveprismsize= $\langle num \rangle$  or  $\langle width \rangle$   $\langle height \rangle$

$\backslash glanthompson$  [ $\langle opt \rangle$ ] ( $\langle in \rangle$ ) ( $\langle out \rangle$ ) { $\langle label \rangle$ }

glanthompsonwidth= $\langle num \rangle$   
glanthompsonheight= $\langle num \rangle$   
glanthompsonsize= $\langle width \rangle$   $\langle height \rangle$   
glanthompsongap= $\langle num \rangle$

$\backslash polarization$  [ $\langle opt \rangle$ ] ( $\langle in \rangle$ ) ( $\langle out \rangle$ ) { $\langle label \rangle$ }

polsize= $\langle num \rangle$   
poltype=parallel, perp, misc, lcirc, rcirc  
Polarization  $\langle pstyle \rangle$

$\backslash optwedge$  [ $\langle opt \rangle$ ] ( $\langle in \rangle$ ) ( $\langle out \rangle$ ) { $\langle label \rangle$ }

wedgeheight= $\langle num \rangle$   
wedgeangleright= $\langle num \rangle$   
wedgeangleleft= $\langle num \rangle$   
wedgeangles= $\langle left \rangle$  [ $\langle right \rangle$ ]  
wedgewidth= $\langle num \rangle$

$\backslash axicon$  [ $\langle opt \rangle$ ] ( $\langle in \rangle$ ) ( $\langle out \rangle$ ) { $\langle label \rangle$ }

axiconheight= $\langle num \rangle$   
axiconwidth= $\langle num \rangle$   
axiconangle= $\langle num \rangle$

$\backslash mirror$  [ $\langle opt \rangle$ ] ( $\langle in \rangle$ ) ( $\langle center \rangle$ ) ( $\langle out \rangle$ ) { $\langle label \rangle$ }

mirrorwidth= $\langle num \rangle$   
mirrorlinewidth= $\langle num \rangle$  or  $\langle dimen \rangle$   
mirrorradius= $\langle radius \rangle$  [ $0$ ]  
mirrortype=plain, piezo, extended, semitrans  
variable=true, false  
mirrordepth= $\langle num \rangle$   
ExtendedMirror  $\langle pstyle \rangle$   
PiezoMirror  $\langle pstyle \rangle$

SemitransMirror  $\langle psstyle \rangle$

pentaprismsize= $\langle num \rangle$

couplersize= $\langle num \rangle$  or  $\langle width \rangle \langle height \rangle$   
couplersep= $\langle num \rangle$   
couplertype=none, ellipse, rectangle, cross  
coupleralign=t, top, b, bottom, c, center  
VariableCoupler  $\langle psstyle \rangle$

$\backslash$ parabolicmirror[ $\langle opt \rangle$ ]( $\langle in \rangle$ )( $\langle out \rangle$ ){ $\langle label \rangle$ }  
parmirrorwidth= $\langle num \rangle$   
parmirrorheight= $\langle num \rangle$

## Fiber components

usefiberstyle=true, false  
usewirestyle=true, false

$\backslash$ oapmirror[ $\langle options \rangle$ ]( $\langle in \rangle$ )( $\langle center \rangle$ )( $\langle focus \rangle$ ){ $\langle label \rangle$ }  
oapmirroraperture= $\langle num \rangle$  or  $\langle inner \rangle \langle outer \rangle$

$\backslash$ optfiber[ $\langle opt \rangle$ ]( $\langle in \rangle$ )( $\langle out \rangle$ ){ $\langle label \rangle$ }  
fiberloops= $\langle int \rangle$   
fiberloopradius= $\langle num \rangle$   
fiberloopsep= $\langle num \rangle$

$\backslash$ beamsplitter[ $\langle opt \rangle$ ]( $\langle in \rangle$ )( $\langle center \rangle$ )( $\langle out \rangle$ ){ $\langle label \rangle$ }  
bssize= $\langle num \rangle$   
bsstyle=cube, plate

$\backslash$ optamp[ $\langle opt \rangle$ ]( $\langle in \rangle$ )( $\langle out \rangle$ ){ $\langle label \rangle$ }  
optampsize= $\langle num \rangle$  or  $\langle width \rangle \langle height \rangle$

$\backslash$ optgrating[ $\langle opt \rangle$ ]( $\langle in \rangle$ )( $\langle center \rangle$ )( $\langle out \rangle$ ){ $\langle label \rangle$ }  
gratingwidth= $\langle num \rangle$   
gratingheight= $\langle num \rangle$   
gratingdepth= $\langle num \rangle$   
gratingcount= $\langle int \rangle$   
gratingtype=blazed, binary  
gratingalign=t, top, c, center  
reverse=true, false  
gratinglinewidth= $\langle num \rangle$  or  $\langle dimen \rangle$

$\backslash$ optmzm[ $\langle opt \rangle$ ]( $\langle in \rangle$ )( $\langle out \rangle$ ){ $\langle label \rangle$ }  
optmzmsize= $\langle num \rangle$  or  $\langle width \rangle \langle height \rangle$

$\backslash$ transmissiongrating[ $\langle opt \rangle$ ]( $\langle in \rangle$ )( $\langle center \rangle$ )( $\langle out \rangle$ ){ $\langle label \rangle$ }

$\backslash$ polcontrol[ $\langle opt \rangle$ ]( $\langle in \rangle$ )( $\langle out \rangle$ ){ $\langle label \rangle$ }  
polcontrolsize= $\langle num \rangle$   
polcontroltype=linear, triangle

$\backslash$ optaom[ $\langle options \rangle$ ]( $\langle in \rangle$ )( $\langle trans \rangle$ )( $\langle diff \rangle$ ){ $\langle label \rangle$ }  
aomheight= $\langle num \rangle$   
aomwidth= $\langle num \rangle$   
aomsize= $\langle width \rangle \langle height \rangle$   
aomgratingcount= $\langle int \rangle$   
aomalign=symmetric, straight  
aomreflalign=perp, parallel  
aomcomp=default,  $\langle macro \rangle$   
diffractionorders= $\langle int \rangle$   
beamdiffractiionorder= $\langle int \rangle$

$\backslash$ optisolator[ $\langle opt \rangle$ ]( $\langle in \rangle$ )( $\langle out \rangle$ ){ $\langle label \rangle$ }  
isolatorsize= $\langle num \rangle$  or  $\langle width \rangle \langle height \rangle$   
IsolatorArrow  $\langle psstyle \rangle$

$\backslash$ optswitch[ $\langle opt \rangle$ ]( $\langle in \rangle$ )( $\langle out \rangle$ ){ $\langle label \rangle$ }  
switchsize= $\langle num \rangle$  or  $\langle width \rangle \langle height \rangle$   
switchstyle=opened, closed

$\backslash$ optprism[ $\langle opt \rangle$ ]( $\langle in \rangle$ )( $\langle center \rangle$ )( $\langle out \rangle$ ){ $\langle label \rangle$ }  
prismsize= $\langle num \rangle$   
prismangle= $\langle num \rangle$   
prismtype=transmittive, reflective  
prismalign=auto, center

$\backslash$ fiberdelayline[ $\langle opt \rangle$ ]( $\langle in \rangle$ )( $\langle out \rangle$ ){ $\langle label \rangle$ }  
fdlsize= $\langle num \rangle$  or  $\langle width \rangle \langle height \rangle$   
FdArrow  $\langle psstyle \rangle$

$\backslash$ rightangleprism[ $\langle opt \rangle$ ]( $\langle in \rangle$ )( $\langle center \rangle$ )( $\langle out \rangle$ ){ $\langle label \rangle$ }  
raprismsize= $\langle num \rangle$   
raprismalign=auto, center

$\backslash$ optfiberpolarizer[ $\langle opt \rangle$ ]( $\langle in \rangle$ )( $\langle out \rangle$ ){ $\langle label \rangle$ }  
fiberpolsize= $\langle num \rangle$  or  $\langle width \rangle \langle height \rangle$

$\backslash$ pentaprism[ $\langle opt \rangle$ ]( $\langle in \rangle$ )( $\langle center \rangle$ )( $\langle out \rangle$ ){ $\langle label \rangle$ }

$\backslash$ optcirculator( $\langle left \rangle$ )( $\langle right \rangle$ )( $\langle bottom \rangle$ ){ $\langle label \rangle$ }  
optcircsize= $\langle num \rangle$   
optcircangleA= $\langle num \rangle$   
optcircangleB= $\langle num \rangle$   
optcircangle= $\langle num \rangle \langle num \rangle$   
OptCircArrow  $\langle psstyle \rangle$

$\backslash$ optcoupler( $\langle tl \rangle$ )( $\langle bl \rangle$ )( $\langle tr \rangle$ )( $\langle br \rangle$ ){ $\langle label \rangle$ }  
 $\backslash$ wdmcoupler( $\langle tl \rangle$ )( $\langle \dots \rangle$ )( $\langle bl \rangle$ )( $\langle r \rangle$ ){ $\langle label \rangle$ }  
 $\backslash$ wdmsplitter( $\langle l \rangle$ )( $\langle tr \rangle$ )( $\langle \dots \rangle$ )( $\langle br \rangle$ ){ $\langle label \rangle$ }

$\backslash$ fiberbox( $\langle in \rangle$ )( $\langle out \rangle$ ){ $\langle label \rangle$ }  
fiberboxwidth= $\langle num \rangle$   
fiberboxheight= $\langle num \rangle$   
fiberboxsize= $\langle width \rangle \langle height \rangle$   
fiberboxsep= $\langle num \rangle$   
fiberboxsepout= $\langle num \rangle$   
fiberboxcount= $\langle N \rangle \times \langle M \rangle$

## Electrical components

$\backslash$ eleccoupler( $\langle tl \rangle$ )( $\langle bl \rangle$ )( $\langle tr \rangle$ )( $\langle br \rangle$ ){ $\langle label \rangle$ }  
eleccouplersize= $\langle size \rangle$  or  $\langle width \rangle \langle height \rangle$   
eleccouplersep= $\langle num \rangle$   
eleccouplertype=standard, directional  
eleccouplerinput=left, right

$\backslash$ elecsynthesizer( $\langle in \rangle$ )( $\langle out \rangle$ ){ $\langle label \rangle$ }  
synthsize= $\langle size \rangle$  or  $\langle width \rangle \langle height \rangle$   
synthtype=sine, pulse, sawtooth, rectangle,  
triangle, custom  
synthshape=circle, rectangle  
SynthStyle  $\langle psstyle \rangle$

$\backslash$ elecmixer( $\langle left \rangle$ )( $\langle right \rangle$ )( $\langle bottom \rangle$ ){ $\langle label \rangle$ }  
elecmixersize= $\langle num \rangle$

## Hybrid components

$\backslash$ optfilter[ $\langle opt \rangle$ ]( $\langle in \rangle$ )( $\langle out \rangle$ ){ $\langle label \rangle$ }  
filtersize= $\langle num \rangle$   
filtertype=bandpass, bandstop, lowpass,  
highpass  
filterangle= $\langle num \rangle$   
FilterStyle  $\langle psstyle \rangle$

$\backslash$ fibercollimator( $\langle in \rangle$ )( $\langle A \rangle$ )( $\langle B \rangle$ )( $\langle out \rangle$ ){ $\langle label \rangle$ }  
fibercolsize= $\langle num \rangle$  or  $\langle width \rangle \langle height \rangle$

`\optdetector`[ $\langle opt \rangle$ ]( $\langle in \rangle$ )( $\langle out \rangle$ ){ $\langle label \rangle$ }  
 detsize= $\langle num \rangle$  or  $\langle width \rangle$   $\langle height \rangle$   
 dettype=round, diode  
 DetectorStyle  $\langle psstyle \rangle$

## Special nodes

`\oenode`{ $\langle node \rangle$ }{ $\langle comp \rangle$ }

showoptdots=true, false  
 compname= $\langle string \rangle$

`\oenodeRefA`{ $\langle comp \rangle$ }

`\oenodeRefB`{ $\langle comp \rangle$ }

`\oenodeTrefA`{ $\langle comp \rangle$ }

`\oenodeTrefB`{ $\langle comp \rangle$ }

`\oenodeCenter`{ $\langle comp \rangle$ }

`\oenodeLabel`{ $\langle comp \rangle$ }

`\oenodeExt`{ $\langle comp \rangle$ }

extnode= $\langle refpoint \rangle$   
 extnodealign=rel, relative, abs, absolute  
 extnodes= $\langle list \rangle$

`\oenodeIfc`{ $\langle num \rangle$ }{ $\langle comp \rangle$ }

`\oenodeIn`{ $\langle comp \rangle$ }

`\oenodeOut`{ $\langle comp \rangle$ }

`\oenodeRotref`{ $\langle comp \rangle$ }

`\oenodeBeam`{ $\langle num \rangle$ }

`\oenodeBeamUp`{ $\langle num \rangle$ }

`\oenodeBeamLow`{ $\langle num \rangle$ }

`\oeBeamCenter`{ $\langle num \rangle$ }

`\oeBeamVec`{ $\langle num \rangle$ }

`\oeBeamVecUp`{ $\langle num \rangle$ }

`\oeBeamVecLow`{ $\langle num \rangle$ }

`\oeBeamVecMedian`{ $\langle num \rangle$ }

## Connecting components

`\drawbeam`[ $\langle options \rangle$ ]{ $\langle obj_1 \rangle$ }{ $\langle obj_2 \rangle$ }...

raytrace=true, false  
 useNA=true, false  
 n= $\langle code \rangle$   
 beampos=[ $\langle x \rangle$ ]  $\langle y \rangle$

beamangle= $\langle pscode \rangle$   
 beamalign=rel, relative, abs, absolute,  
     firstcomp  
 beampathskip= $\langle num \rangle$   
 beampathcount= $\langle num \rangle$   
 beaminside=true, false  
 beaminsidefirst=true, false  
 beaminsidelast=true, false  
 allowbeaminside=true, false  
 forcebeaminside=true, false  
 startinsidecount= $\langle num \rangle$   
 stopinsidecount= $\langle num \rangle$   
 beammode=refl, trans, reflective, transmittive,  
     auto  
 beamnodealign=vec, conn, vector, connection

`\optplane`( $\langle center \rangle$ )

beam=true, false  
 Beam  $\langle psstyle \rangle$   
 addtoBeam= $\langle list \rangle$   
 newBeam= $\langle list \rangle$   
 ArrowInsideMinLength= $\langle pscode \rangle$   
 ArrowInsideMaxLength= $\langle pscode \rangle$   
 fade  $\langle linestyle \rangle$   
 fadeto=white, black, transparency  
 fadepoints= $\langle num \rangle$   
 fadefuncname=gauss, linear, squared, exp,  
     custom  
 fadefunc= $\langle PS\ code \rangle$

`\drawwidebeam`[ $\langle options \rangle$ ]{ $\langle obj_1 \rangle$ }{ $\langle obj_2 \rangle$ }...

beamwidth= $\langle pscode \rangle$   
 beamdiv= $\langle pscode \rangle$   
 pswarning=true, false  
 savebeampoints=true, false,  $\langle int \rangle$   
 loadbeampoints=true, false,  $\langle int \rangle$   
 savebeam=true, false,  $\langle int \rangle$   
 loadbeam=true, false,  $\langle int \rangle$   
 startinside=true, false  
 stopinside=true, false

`\drawfiber`[ $\langle options \rangle$ ]{ $\langle obj_1 \rangle$ }{ $\langle obj_2 \rangle$ }...

fiberalign=rel, relative, center, abs,  
 absolute

fiberangleA= $\langle num \rangle$   
 fiberangleB= $\langle num \rangle$   
 startnode=auto, N, 1, 2, ...  
 stopnode=auto, N, 1, 2, ...  
 Fiber  $\langle psstyle \rangle$   
 addtoFiber= $\langle list \rangle$   
 newFiber= $\langle list \rangle$   
 fiberstyle= $\langle string \rangle$

`\drawwire`[ $\langle options \rangle$ ]{ $\langle obj_1 \rangle$ }{ $\langle obj_2 \rangle$ }...

wirealign=rel, relative, center, abs,  
 absolute  
 wireangleA= $\langle num \rangle$   
 wireangleB= $\langle num \rangle$   
 wirestyle= $\langle string \rangle$   
 addtoWire= $\langle list \rangle$   
 newWire= $\langle list \rangle$   
 Wire  $\langle psstyle \rangle$   
 fiber=[\*]none, all, i, o,  $\langle refpoint \rangle$   
 wire=[\*]none, all, i, o,  $\langle refpoint \rangle$

`\begin{optexp}...\end{optexp}`

`\backlayer`{ $\langle code \rangle$ }

`\frontlayer`{ $\langle code \rangle$ }

## Custom components

`\optdipole`[ $\langle options \rangle$ ]( $\langle in \rangle$ )( $\langle out \rangle$ ){ $\langle comp \rangle$ }{ $\langle label \rangle$ }

`\opttripole`[ $\langle options \rangle$ ]( $\langle in \rangle$ )( $\langle center \rangle$ )( $\langle out \rangle$ ){ $\langle comp \rangle$ }{ $\langle label \rangle$ }

optdipolesize= $\langle width \rangle$ [  $\langle height \rangle$ ]

optdipolecomp= $\langle macros \rangle$

opttripolecomp= $\langle macros \rangle$

`\newOptexpDipole`[ $\langle fixopt \rangle$ ]{ $\langle name \rangle$ }{ $\langle dftopt \rangle$ }

`\newOptexpTripole`[ $\langle fixopt \rangle$ ]{ $\langle name \rangle$ }{ $\langle dftopt \rangle$ }

`\newOptexpFiberDipole`[ $\langle fixopt \rangle$ ]{ $\langle name \rangle$ }{ $\langle dftopt \rangle$ }

`\newOptexpElecDipole`[ $\langle fixopt \rangle$ ]{ $\langle name \rangle$ }{ $\langle dftopt \rangle$ }

## Additional information

showifcnodes=true, false  
 IfcNodeStyle  $\langle psstyle \rangle$   
 showinterfaces=true, false

IfcStyle *<psstyle>*