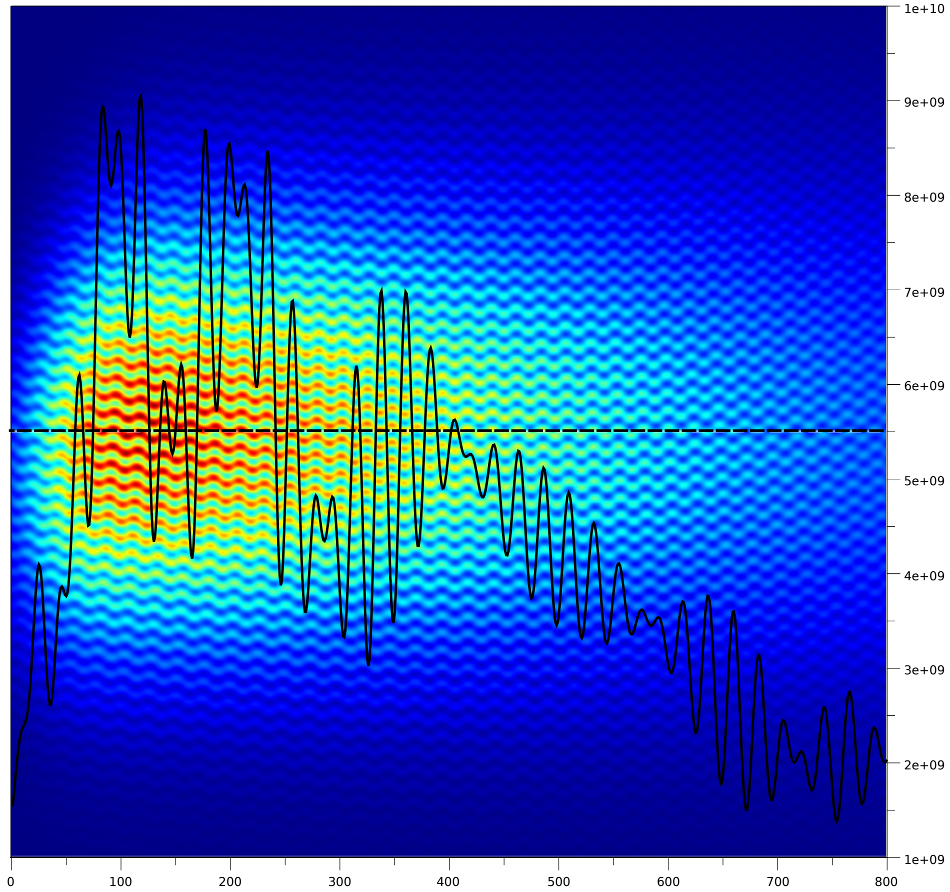
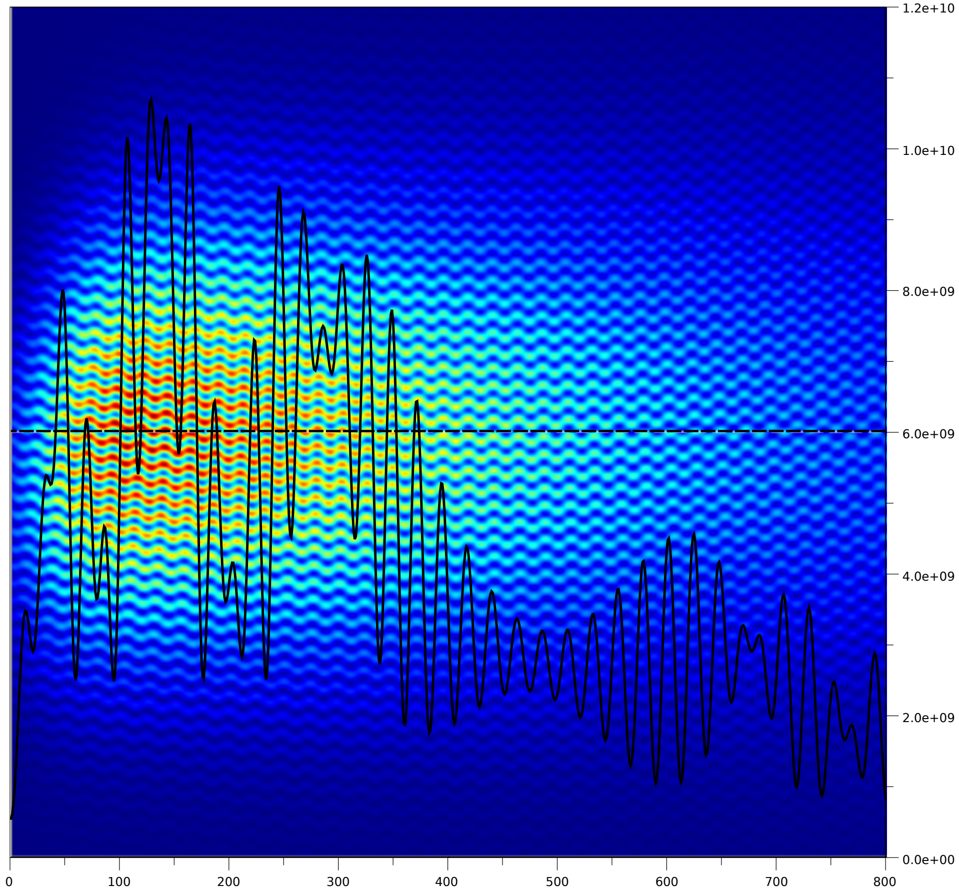
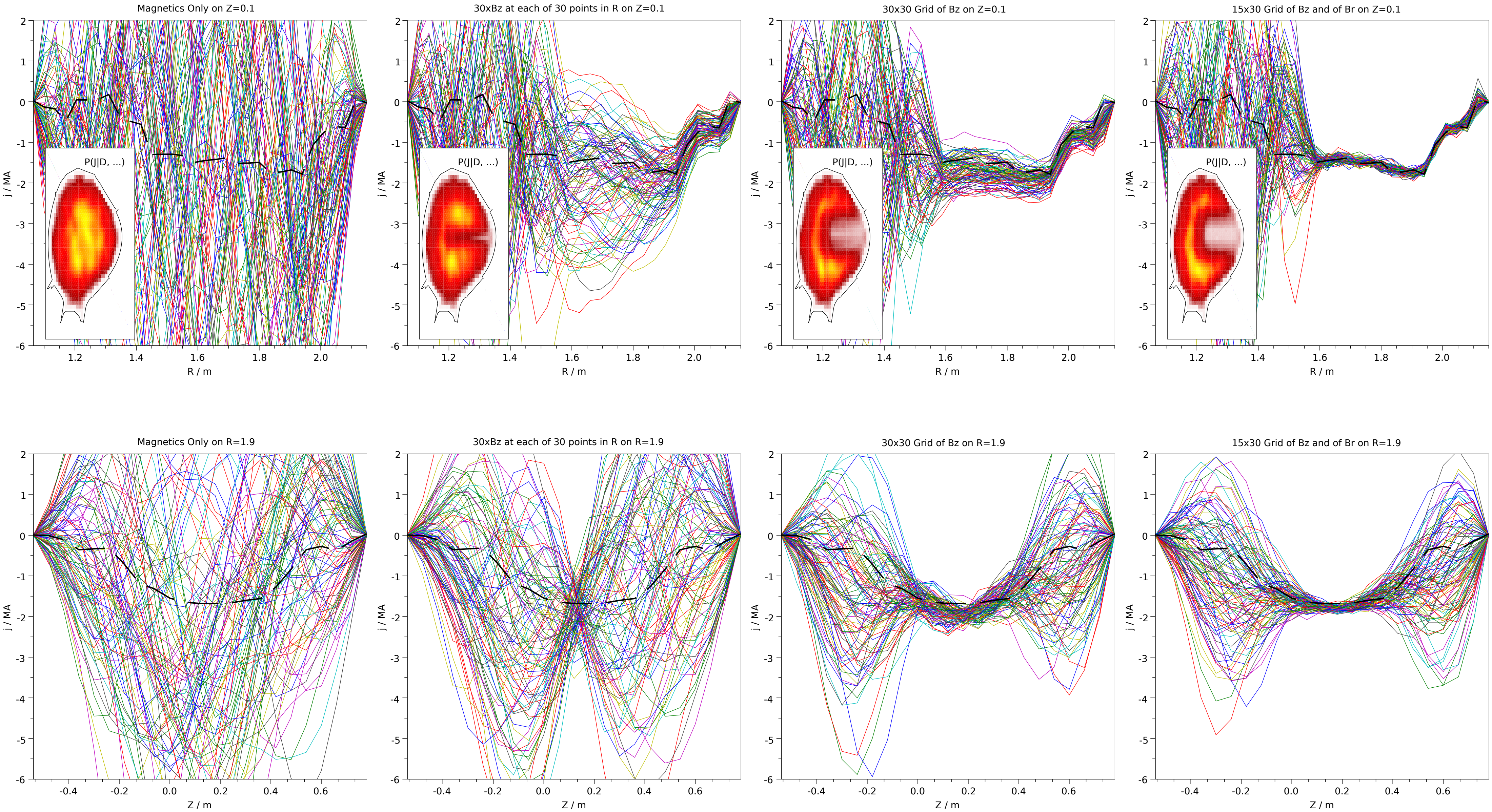
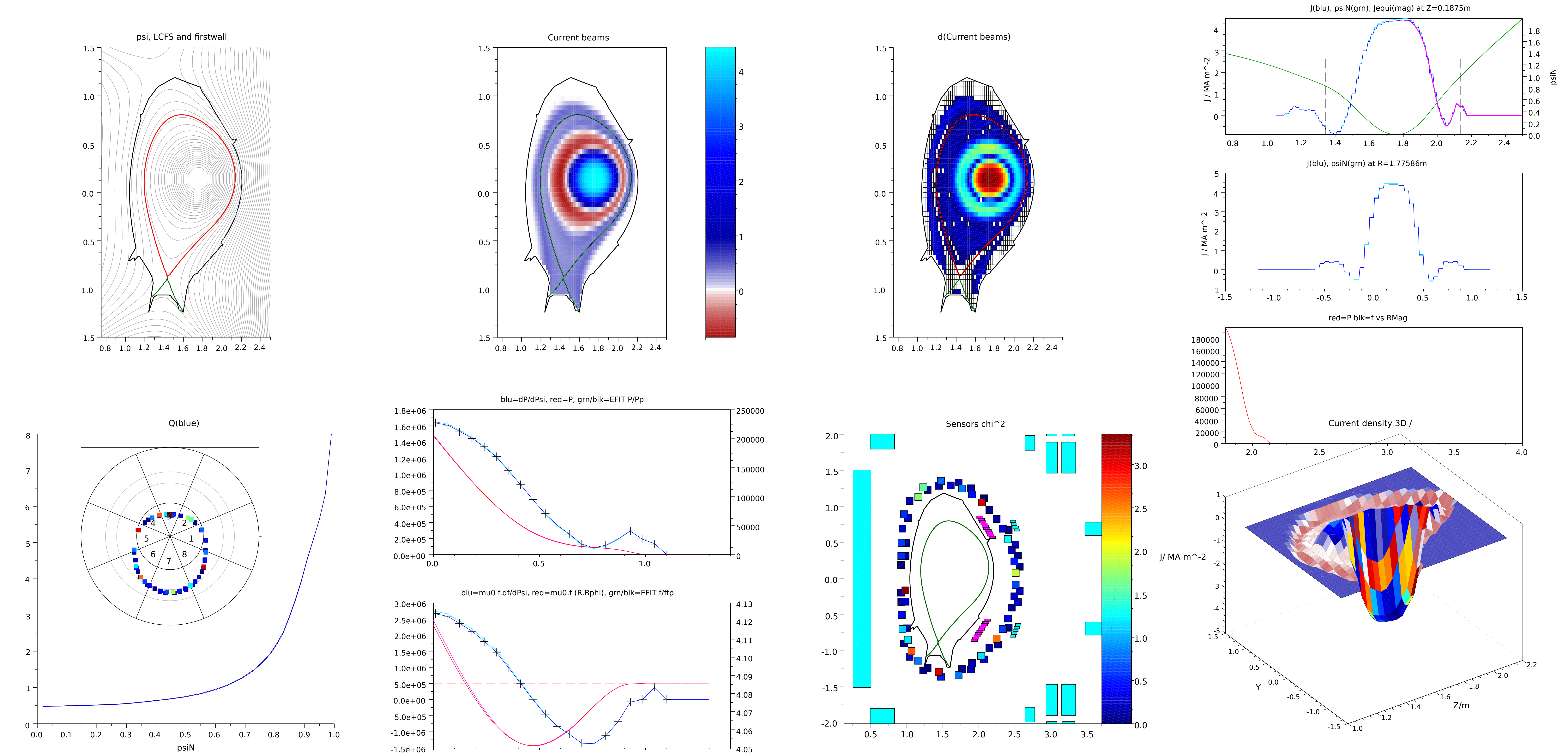
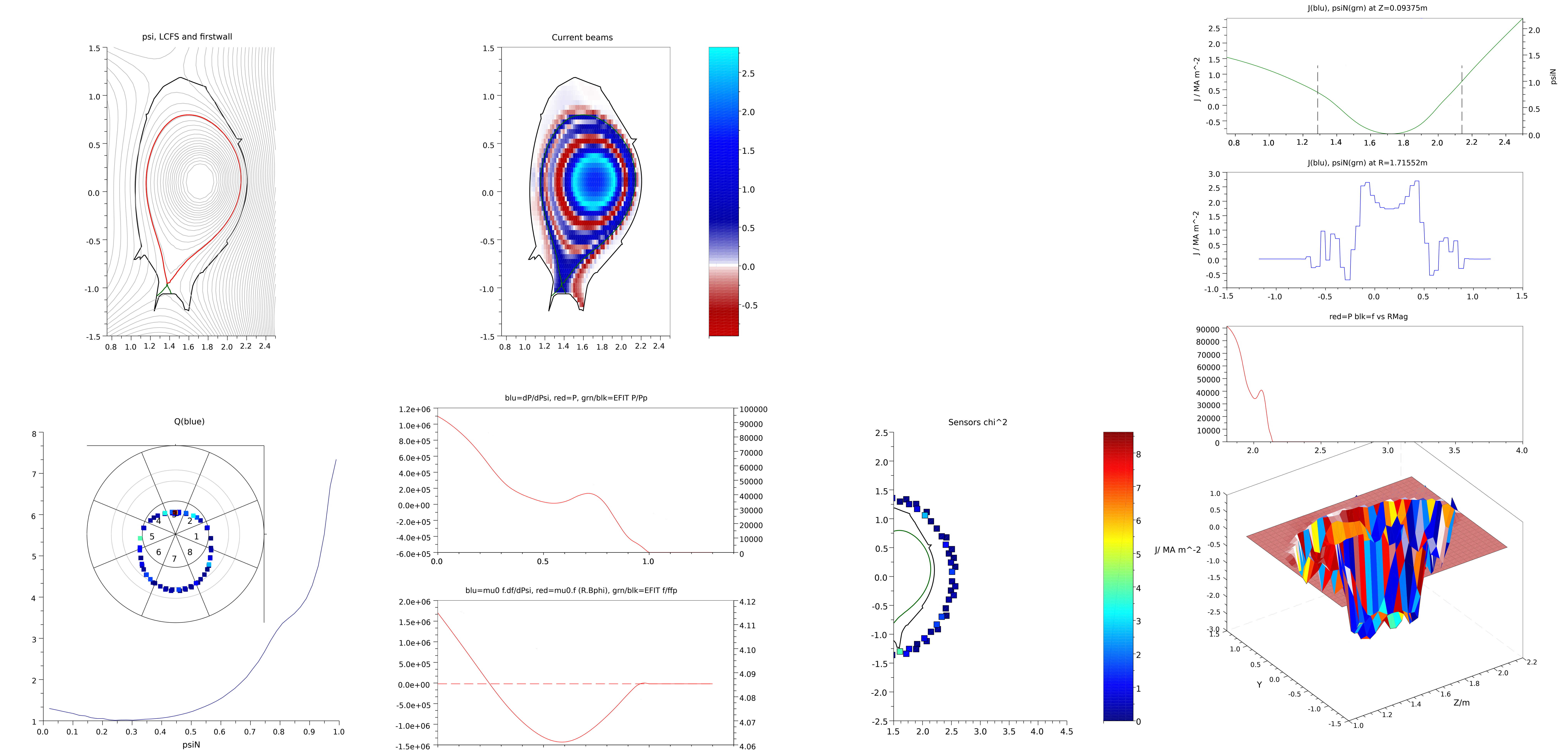

1e+10
9e+09
8e+09
7e+09
6e+09
5e+09
4e+09
3e+09
2e+09
1e+09
0
100
200
300
400
500
600
700
800

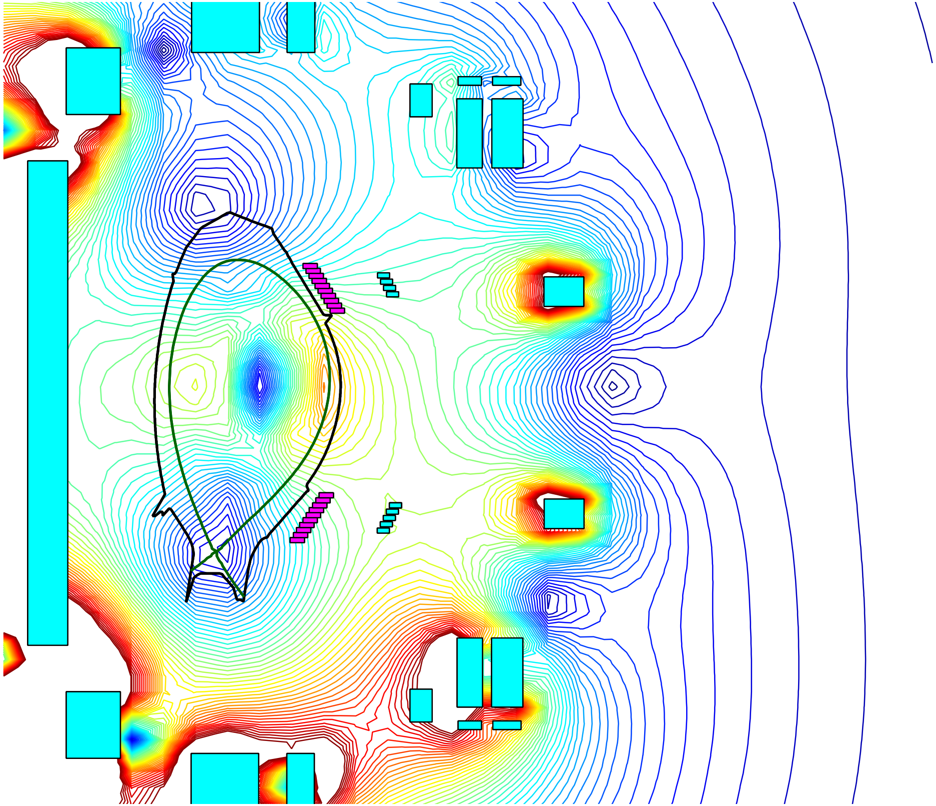

1.2e+10
1.0e+10
8.0e+09
6.0e+09
4.0e+09
2.0e+09
0.0e+00
0
100
200
300
400
500
600
700
800

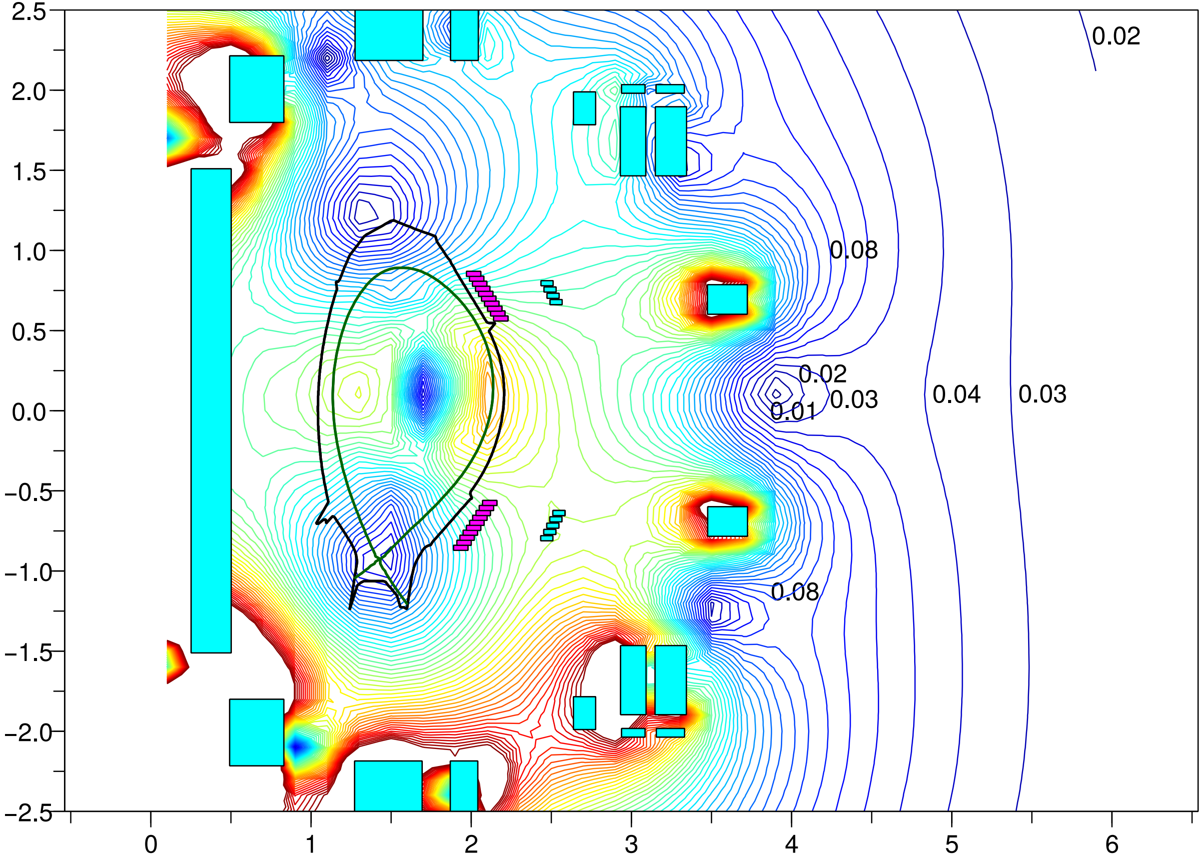


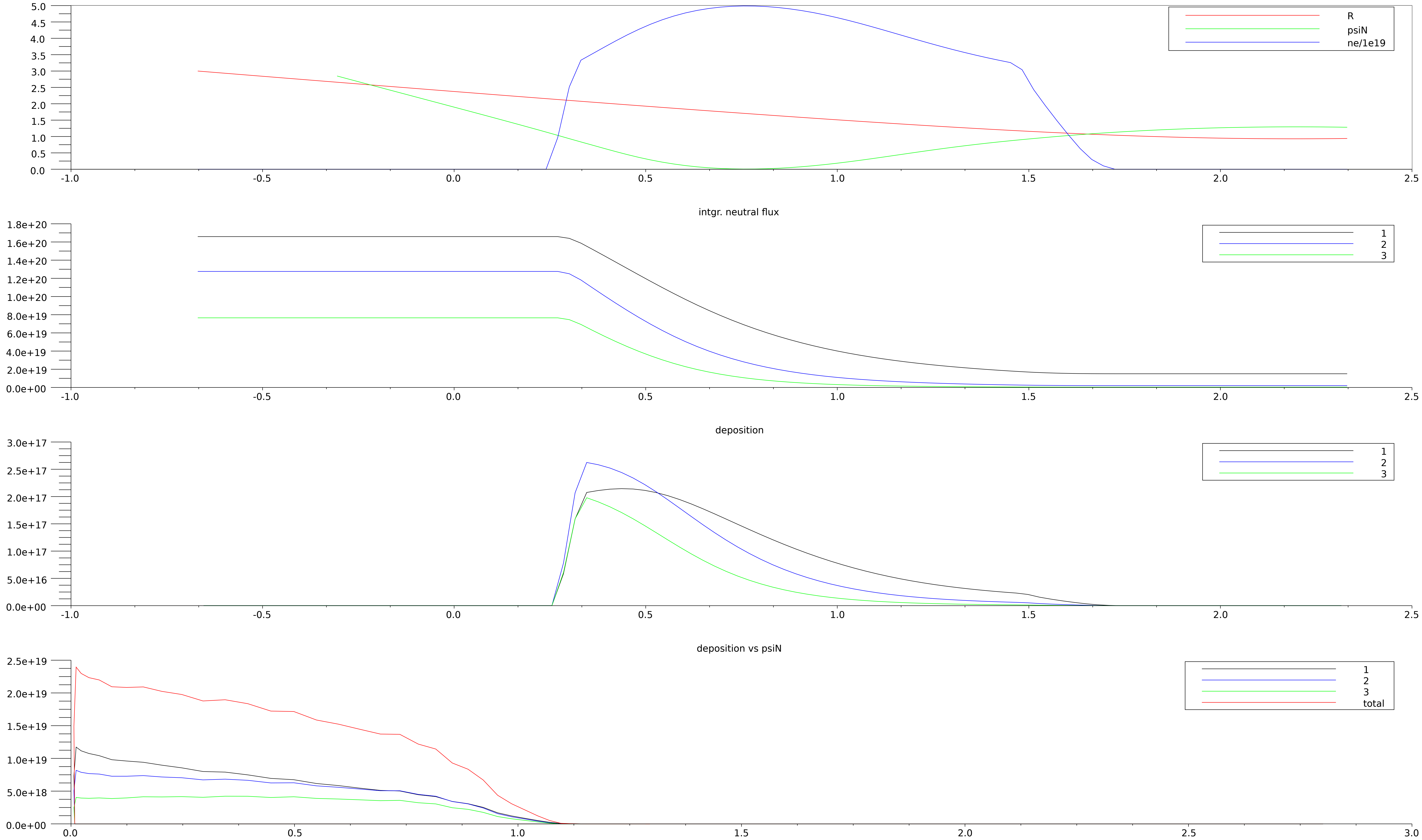
Magnetics Only on Z=0.1
30xBz at each of 30 points in R on Z=0.1
30x30 Grid of Bz on Z=0.1
15x30 Grid of Bz and of Br on Z=0.1
P(J|D, ...)
j / MA
R / m
Magnetics Only on R=1.9
30xBz at each of 30 points in R on R=1.9
30x30 Grid of Bz on R=1.9
15x30 Grid of Bz and of Br on R=1.9
Z / m

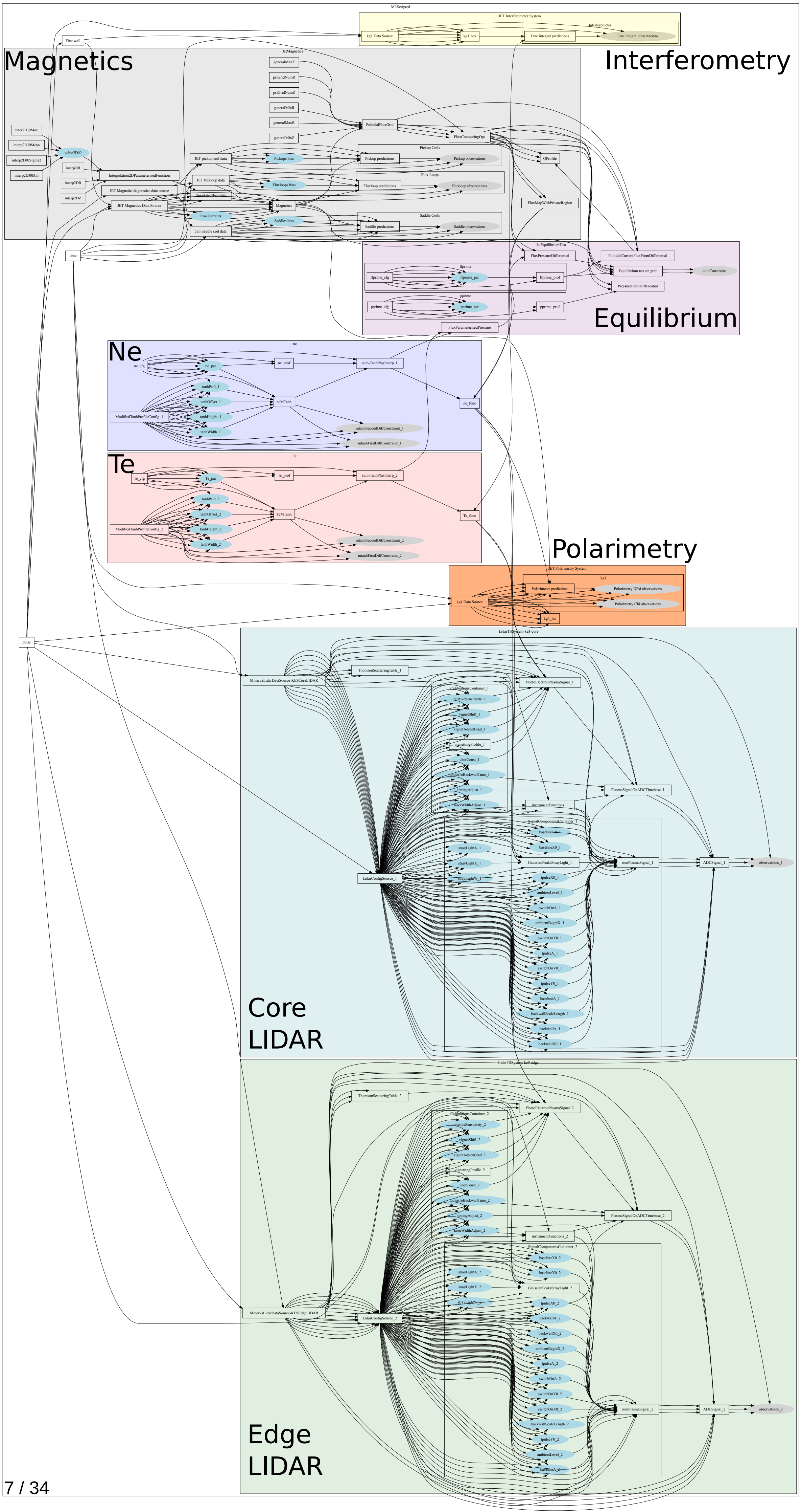

psi, LCFS and firstwall
Current beams
d(Current beams)
J(blu), psiN(grn), Jequi(mag) at Z=0.1875m
J / MA m^-2
psiN
J(blu), psiN(grn) at R=1.77586m
J / MA m^-2
red=P blk=f vs RMag
Q(blue)
psiN
blu=dP/dPsi, red=P, grn/blk=EFIT P/Pp
blu=mu0 f.df/dPsi, red=mu0.f (R.Bphi), grn/blk=EFIT f/ffp
Sensors chi^2
Current density 3D /
J/ MA m^-2
Y
Z/m

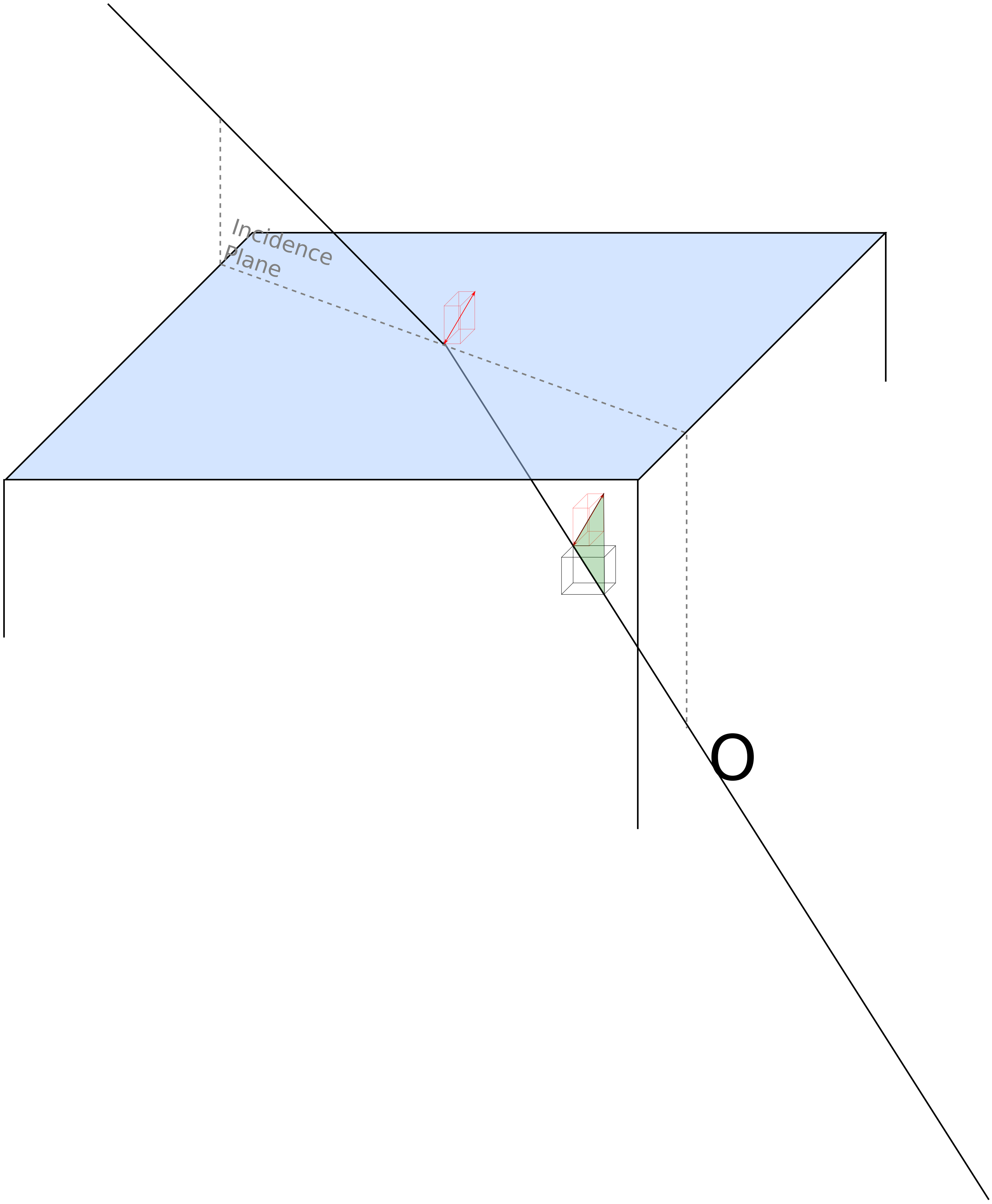

psi, LCFS and firstwall
Current beams
J(blu), psiN(grn) at Z=0.09375m
J / MA m^-2
psiN
J(blu), psiN(grn) at R=1.71552m
J / MA m^-2
red=P blk=f vs RMag
Q(blue)
psiN
blu=dP/dPsi, red=P, grn/blk=EFIT P/Pp
blu=mu0 f.df/dPsi, red=mu0.f (R.Bphi), grn/blk=EFIT f/ffp
Sensors chi^2
J/ MA m^-2
Y
Z/m

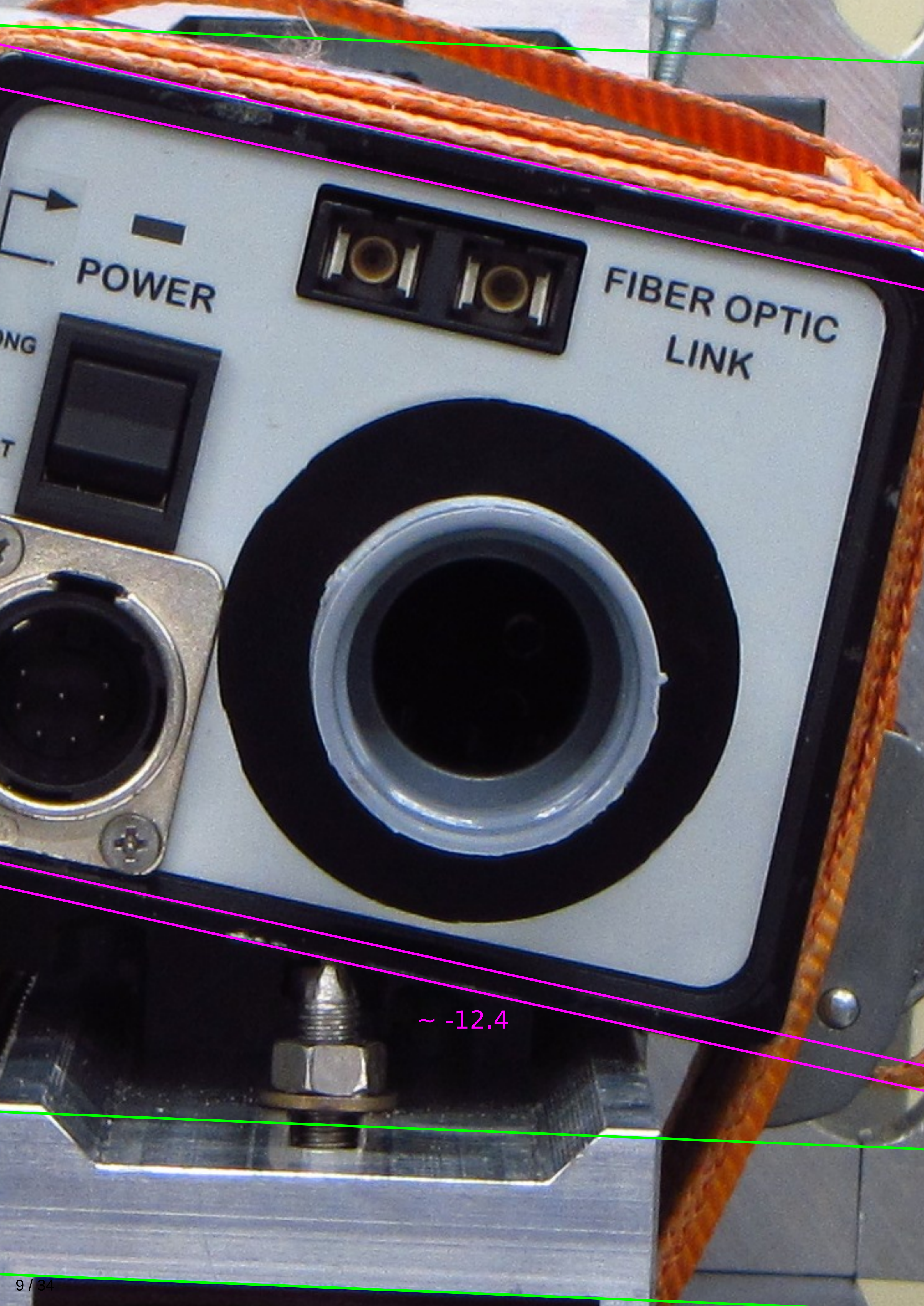


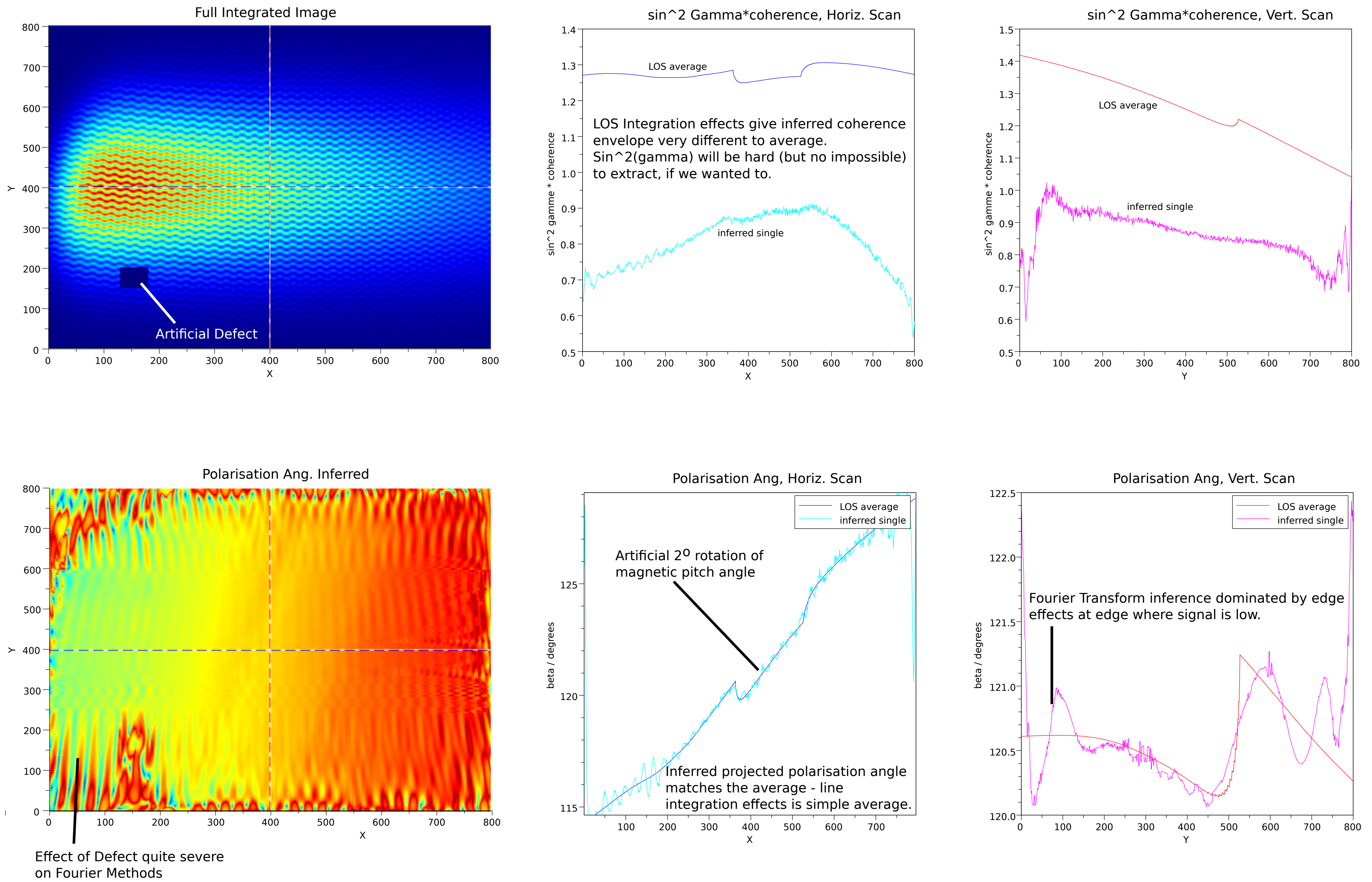

2.5
2.0
1.5
1.0
0.5
0.0
−0.5
−1.0
−1.5
−2.0
−2.5
0
1
2
3
4
5
6
0.02
0.08
0.02
0.03
0.01
0.04
0.03
0.08

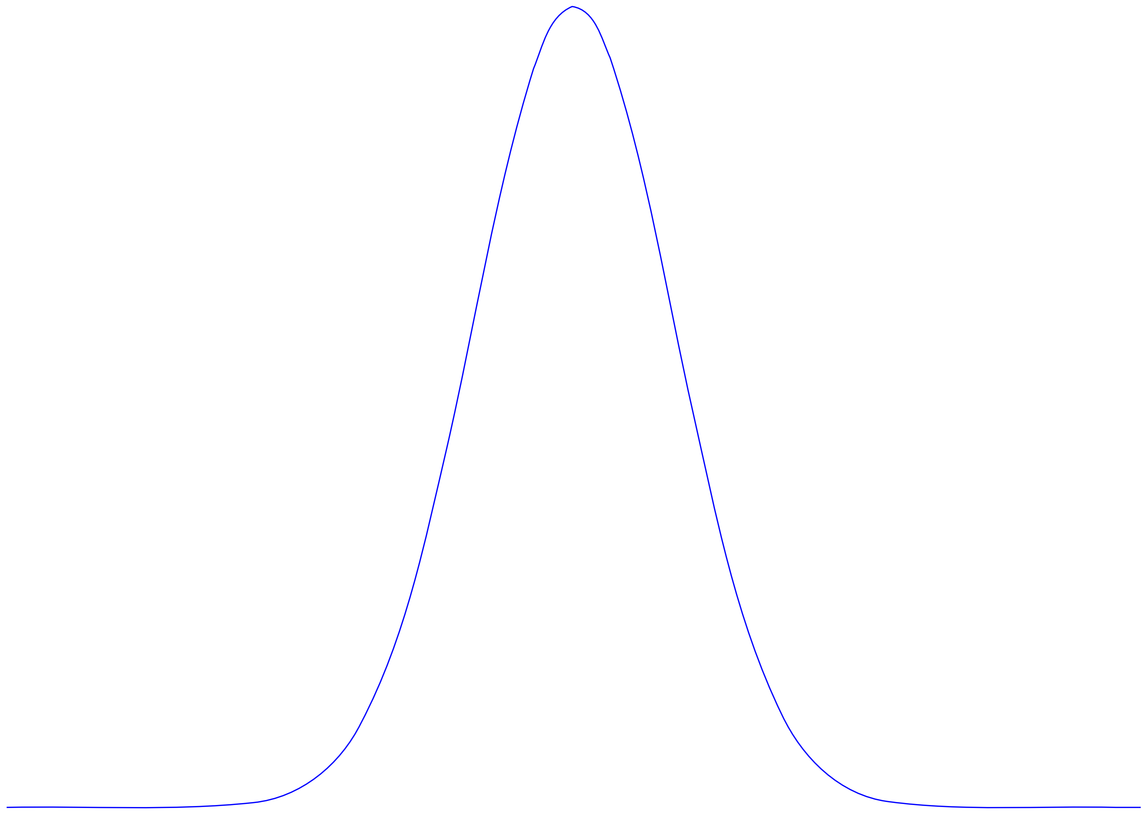

R
psiN
ne/1e19
intgr. neutral flux
1
2
3
deposition
1
2
3
deposition vs psiN
1
2
3
total

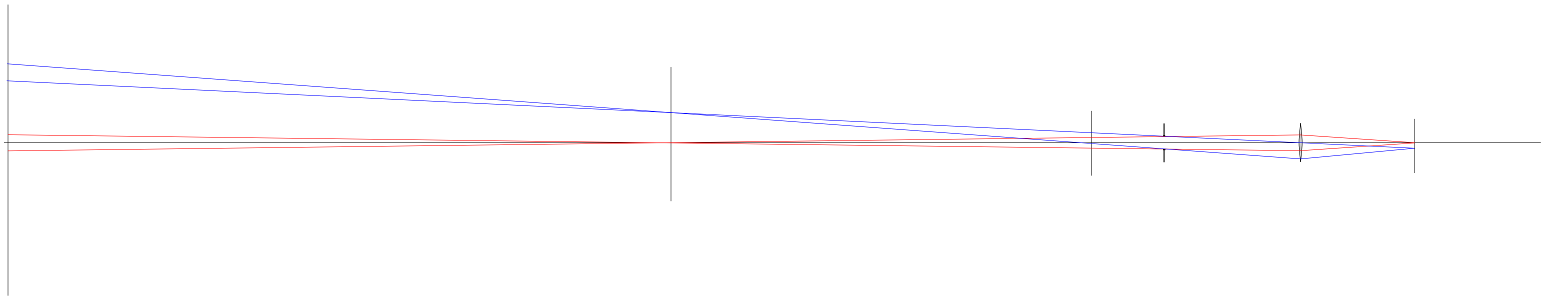

Magnetics
Interferometry
Equilibrium
Ne
Te
Polarimetry
Core
LIDAR
Edge
LIDAR

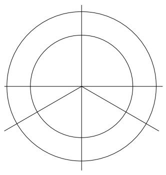

Incidence
Plane
O

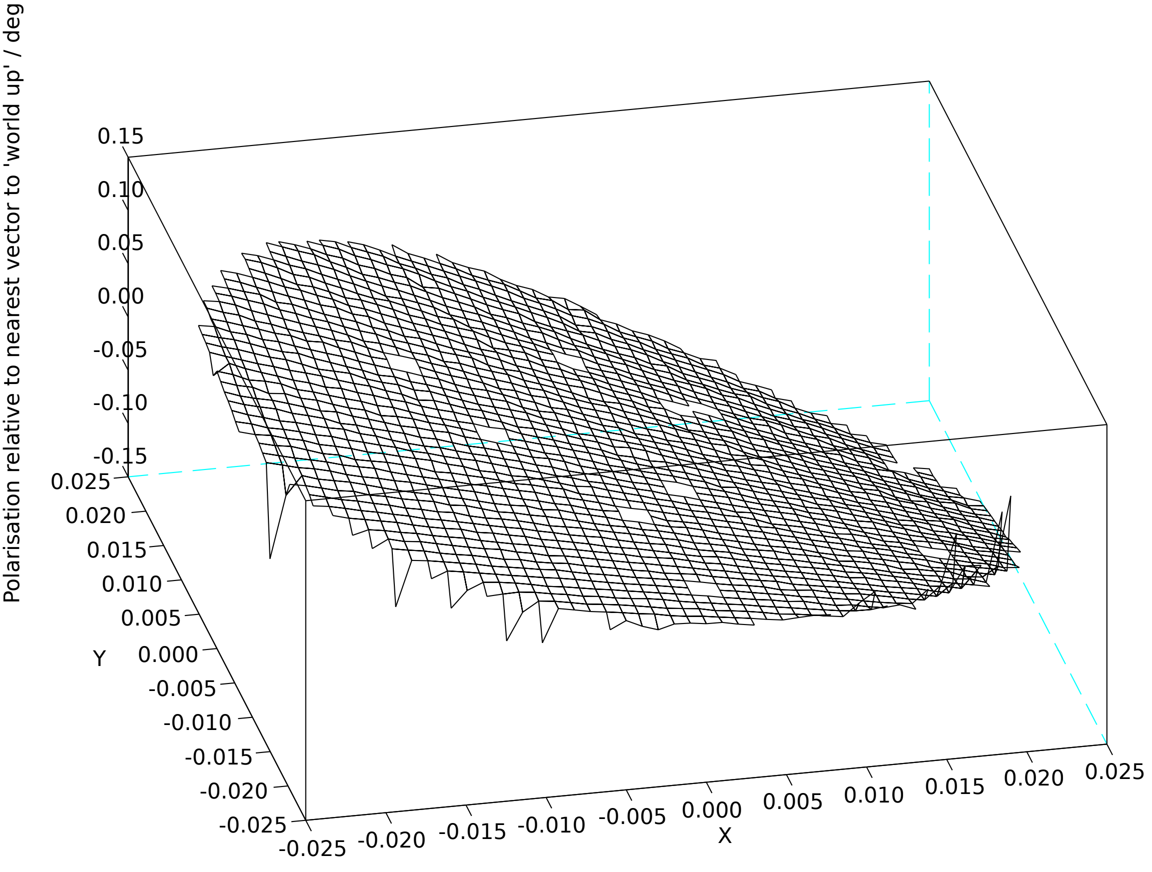

POWER
FIBER OPTIC
LINK
~ -12.4

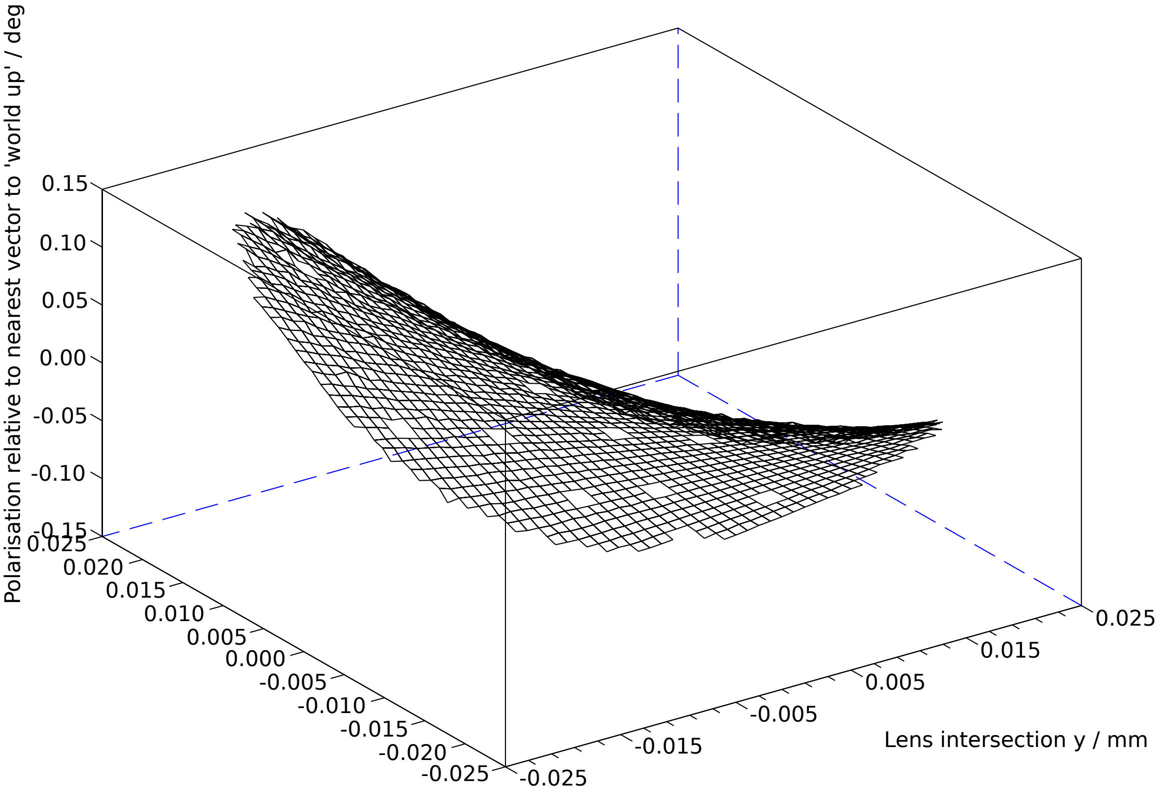

Full Integrated Image
Artificial Defect
sin^2 Gamma*coherence, Horiz. Scan
LOS average
LOS Integration effects give inferred coherence envelope very different to average. Sin^2(gamma) will be hard (but no impossible) to extract, if we wanted to.
inferred single
sin^2 gamme * coherence
sin^2 Gamma*coherence, Vert. Scan
LOS average
inferred single
sin^2 gamme * coherence
Polarisation Ang. Inferred
Effect of Defect quite severe on Fourier Methods
Polarisation Ang, Horiz. Scan
LOS average
inferred single
Artificial 2^{o} rotation of magnetic pitch angle
Inferred projected polarisation angle matches the average - line integration effects is simple average.
beta / degrees
Polarisation Ang, Vert. Scan
LOS average
inferred single
Fourier Transform inference dominated by edge effects at edge where signal is low.
beta / degrees

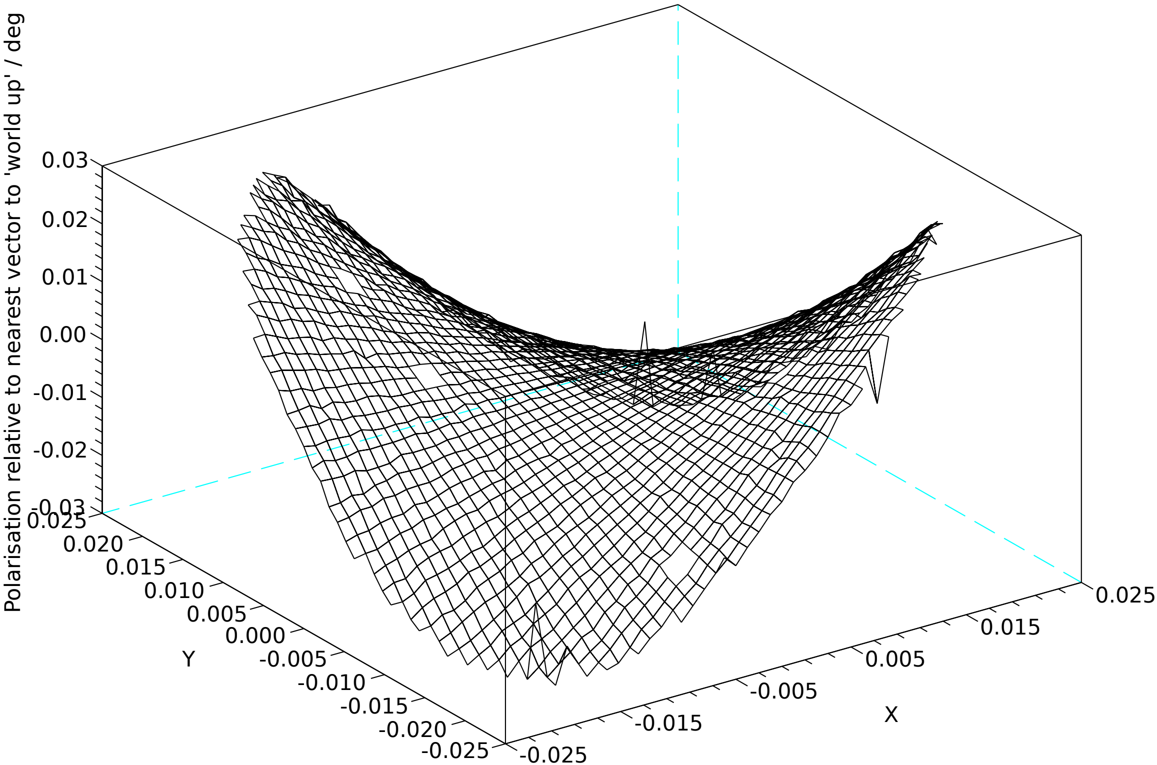


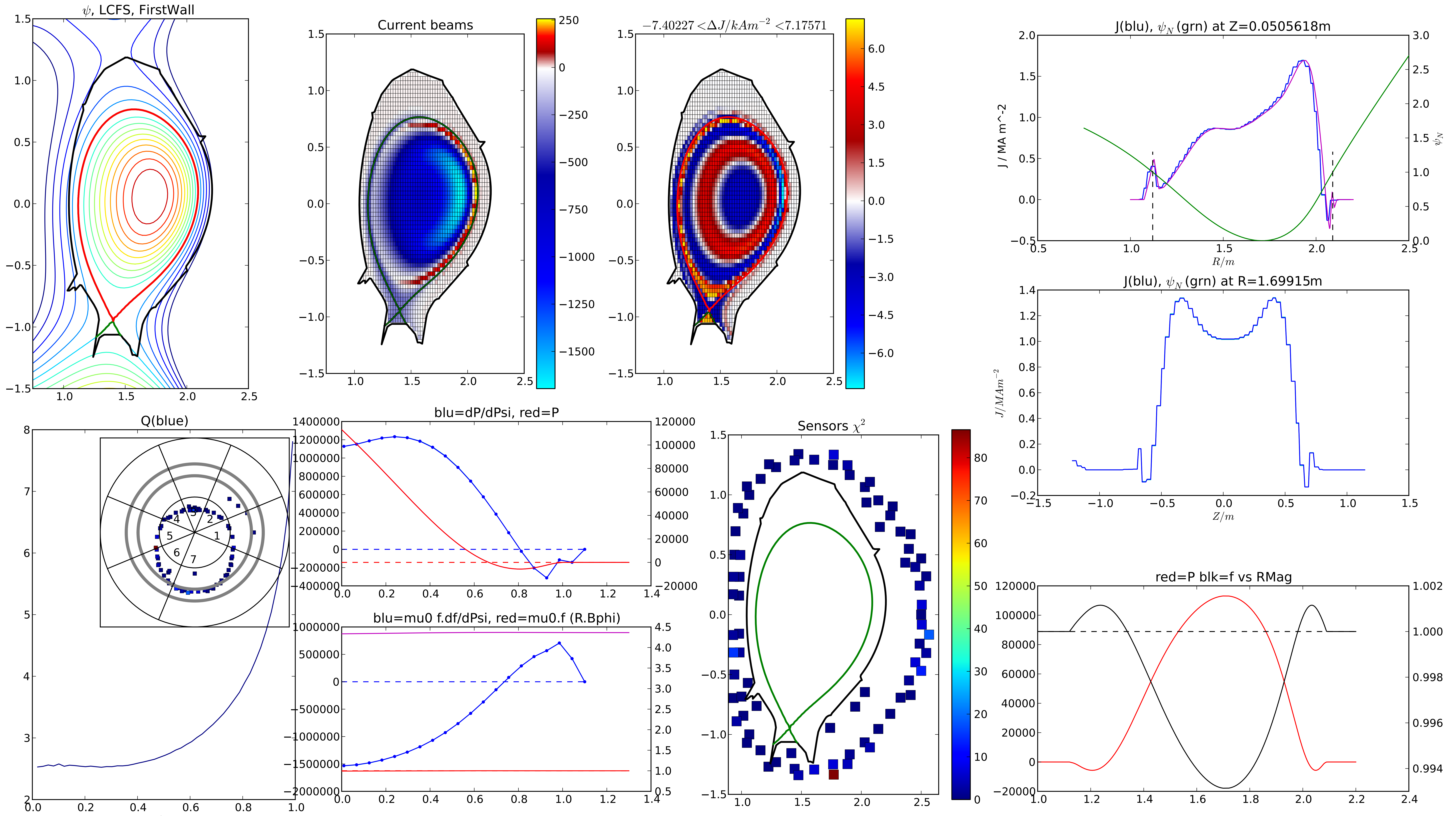




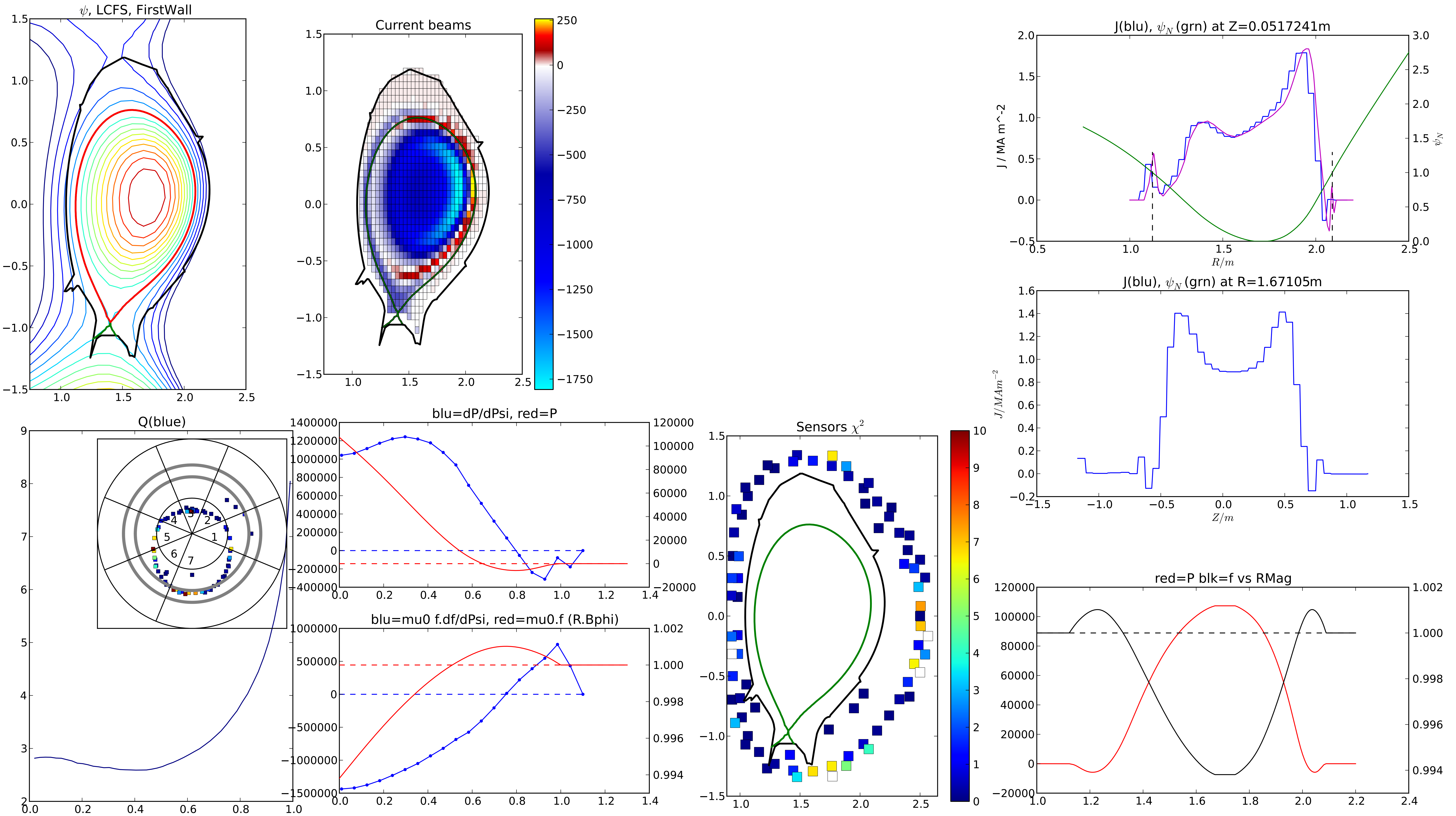

Polarisation relative to nearest vector to 'world up' / deg
0.15
0.10
0.05
0.00
-0.05
-0.10
-0.15
Y
0.025
0.020
0.015
0.010
0.005
0.000
-0.005
-0.010
-0.015
-0.020
-0.025
X
-0.025
-0.020
-0.015
-0.010
-0.005
0.000
0.005
0.010
0.015
0.020
0.025

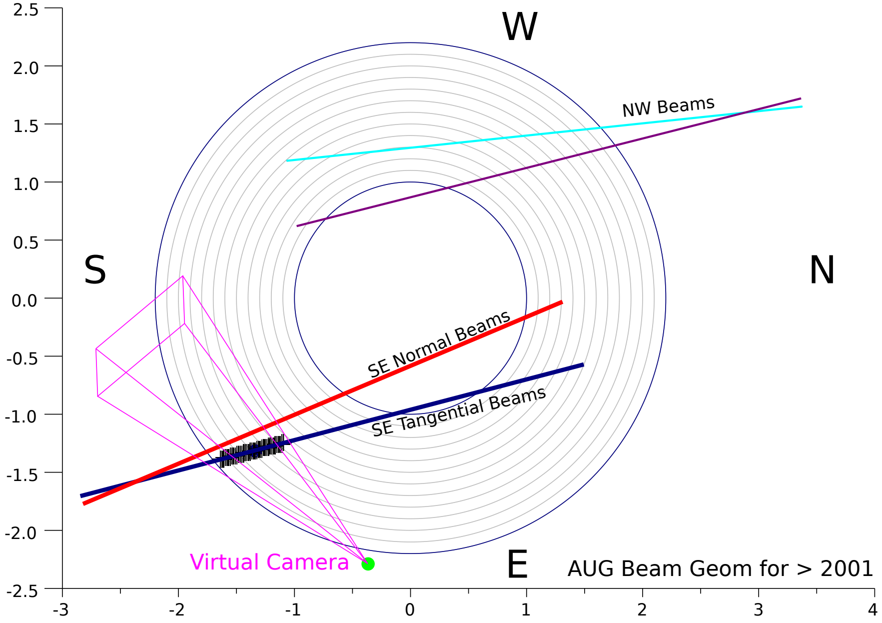

Polarisation relative to nearest vector to 'world up' / deg
0.15
0.10
0.05
0.00
-0.05
-0.10
-0.15
0.025
0.020
0.015
0.010
0.005
0.000
-0.005
-0.010
-0.015
-0.020
-0.025
-0.025
-0.015
-0.005
0.005
0.015
0.025
Lens intersection y / mm

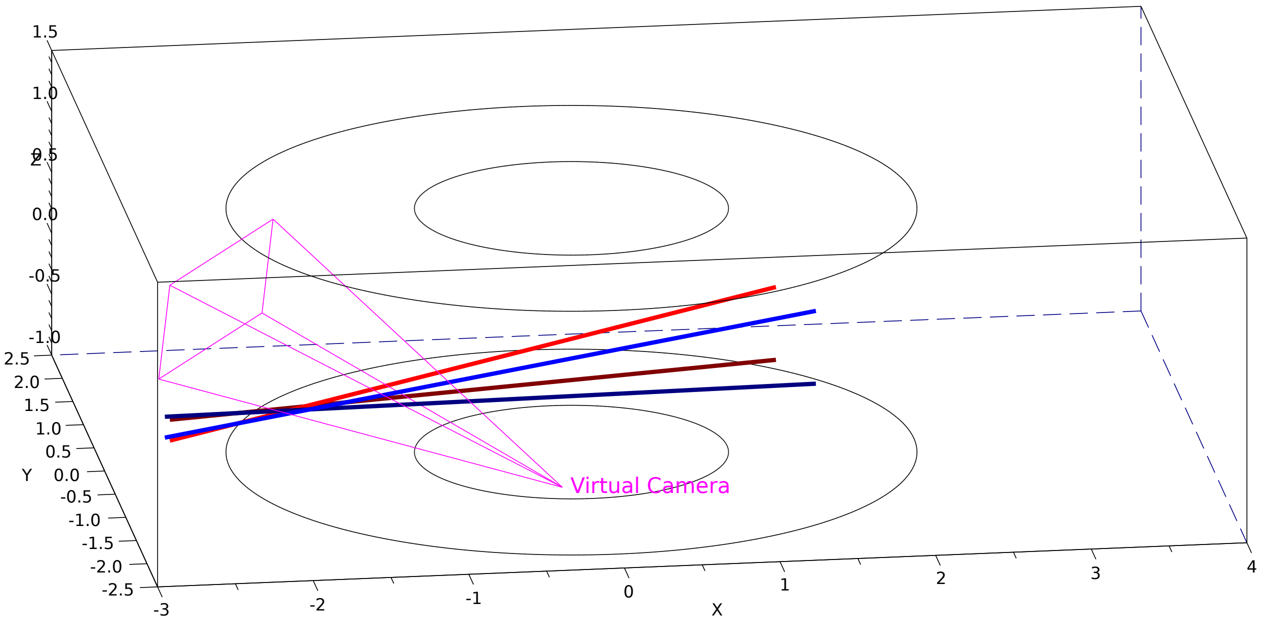

Polarisation relative to nearest vector to 'world up' / deg
0.03
0.02
0.01
0.00
-0.01
-0.02
-0.03
0.025
0.020
0.015
0.010
0.005
0.000
-0.005
-0.010
-0.015
-0.020
-0.025
Y
-0.025
-0.015
-0.005
0.005
0.015
0.025
X

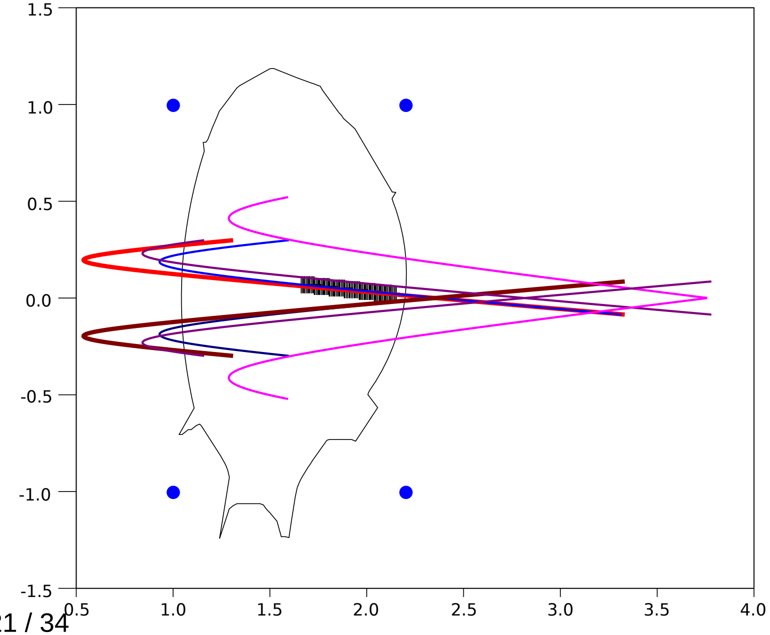


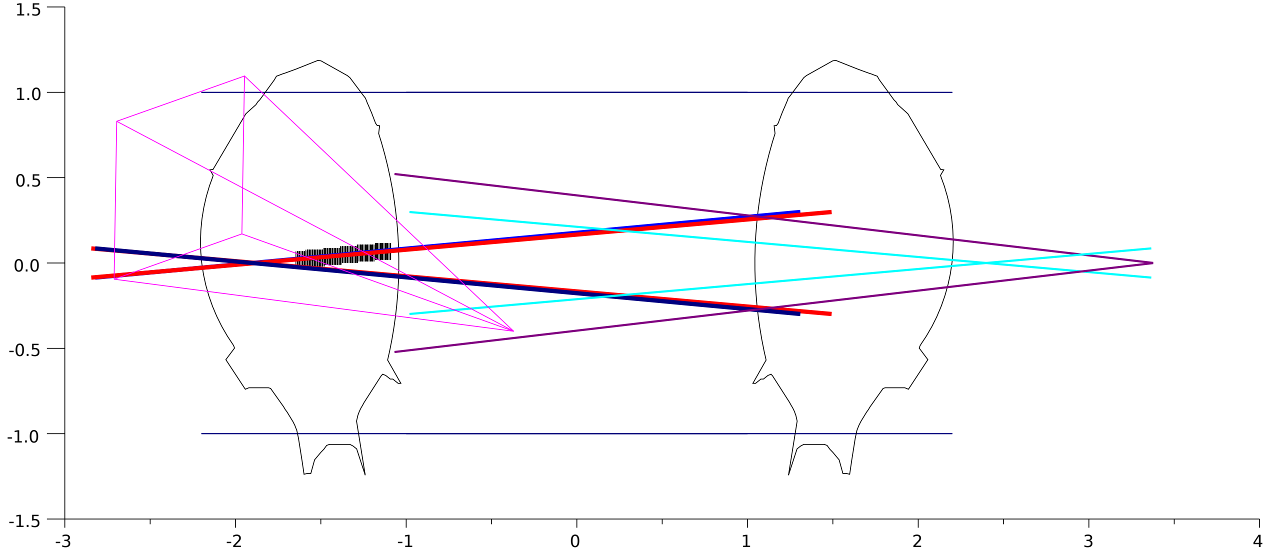
ψ, LCFS, FirstWall
Current beams
$-7.40227 < \Delta J/kAm^{-2} < 7.17571$
J(blu), ψ_N(grn) at Z=0.0505618m
J / MA m^-2
ψ_N
R/m
J(blu), ψ_N(grn) at R=1.69915m
J/MAm^{-2}
Z/m
Q(blue)
blu=dP/dPsi, red=P
blu=mu0 f.df/dPsi, red=mu0.f (R.Bphi)
Sensors χ^2
red=P blk=f vs RMag


ψ, LCFS, FirstWall
Current beams
J(blu), ψ_N (grn) at Z=0.0517241m
J / MA m^-2
ψ_N
R/m
J(blu), ψ_N (grn) at R=1.67105m
J/MAm^{-2}
Z/m
Q(blue)
blu=dP/dPsi, red=P
blu=mu0 f.df/dPsi, red=mu0.f (R.Bphi)
Sensors χ^2
red=P blk=f vs RMag

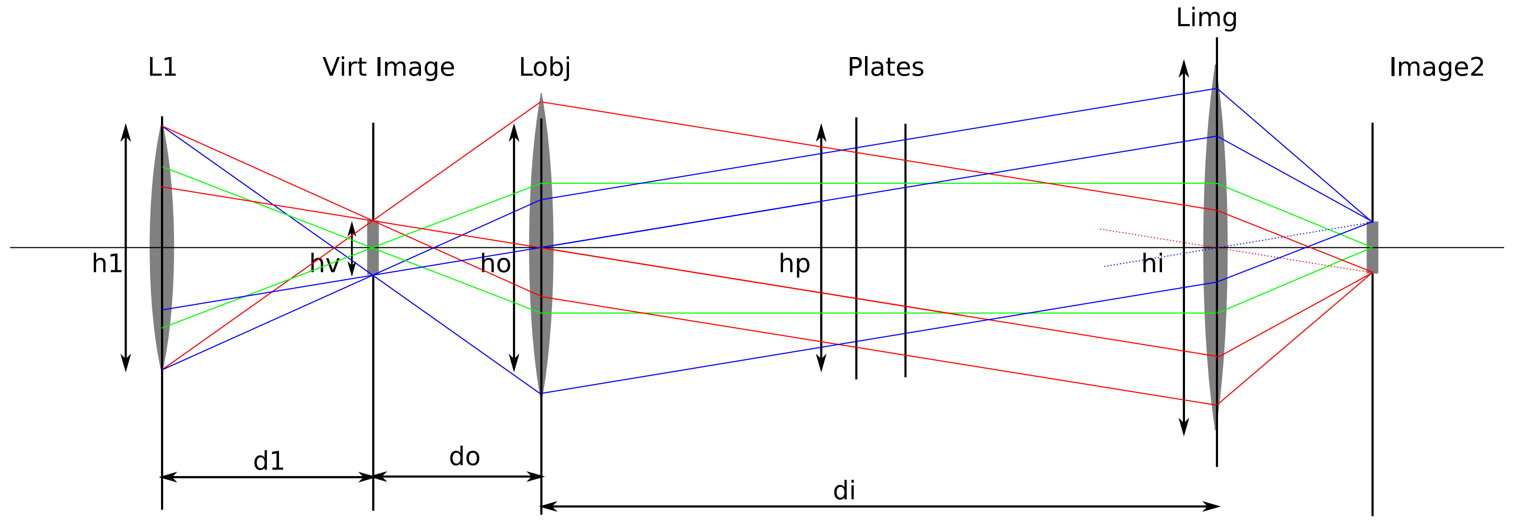








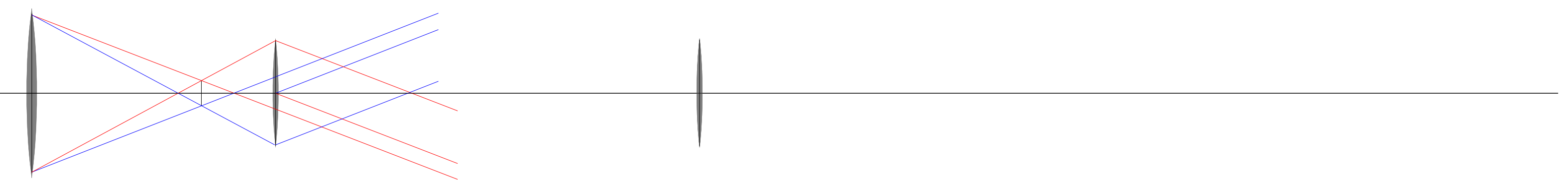
*Everything in meters

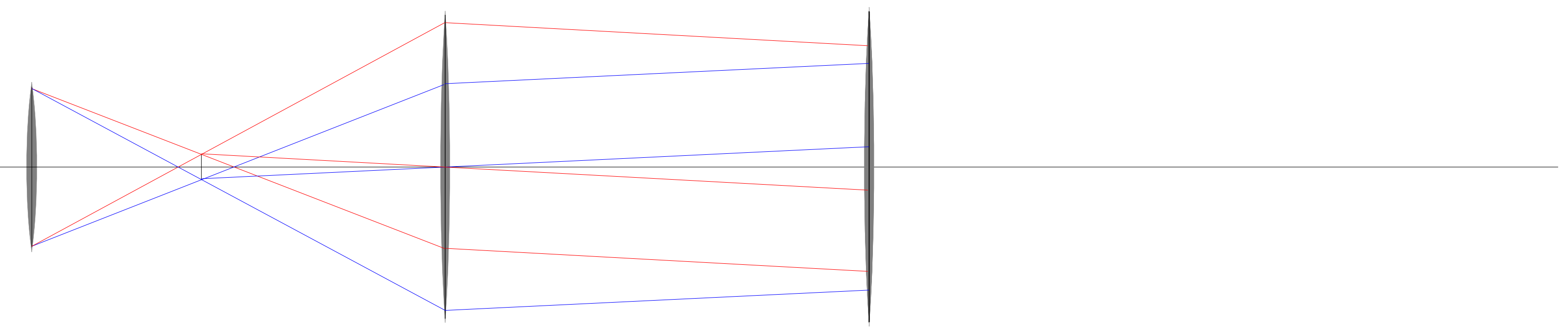


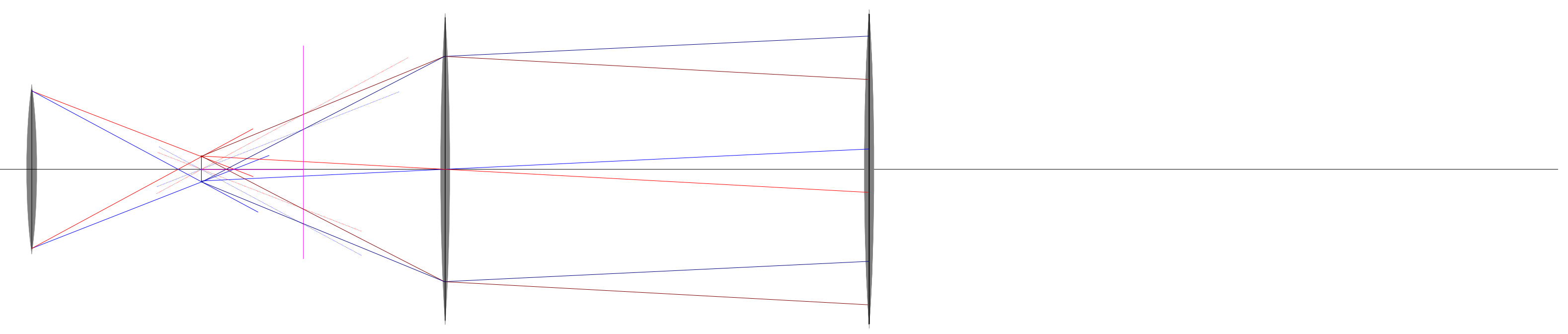
h1 ~ 75mm
d1 ~ 80mm
hv ~ 12mm (virt image)

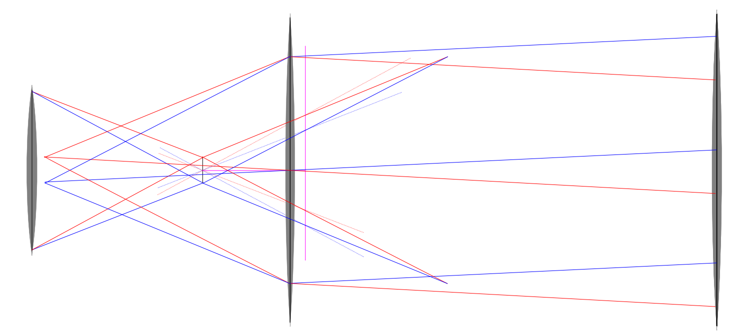
To keep all light:
ho = hv + do (h1+hv)/d1 (objective lens)
do = d1 (ho - hv)/(h1+hv) (objective lens)

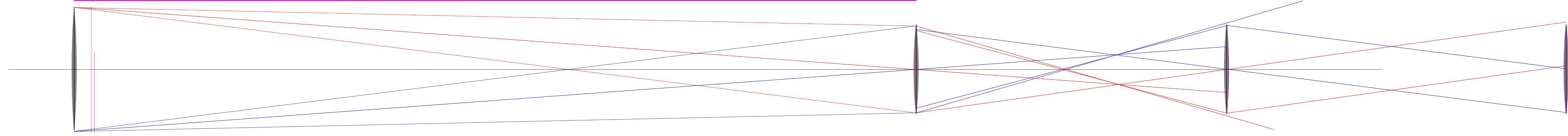
hi = h1 do/d1 - hv (1 + do/d1) + di hv/do



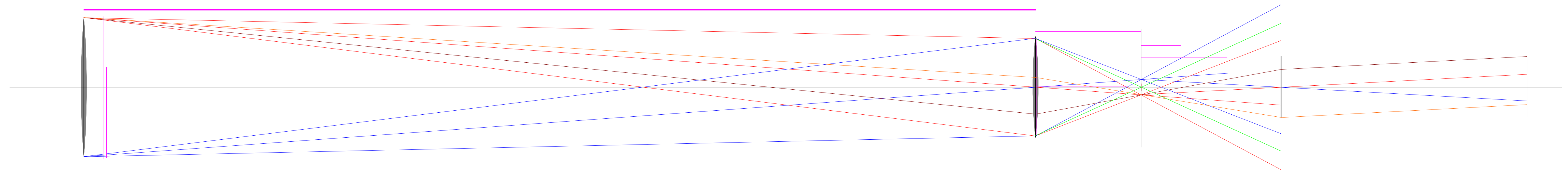


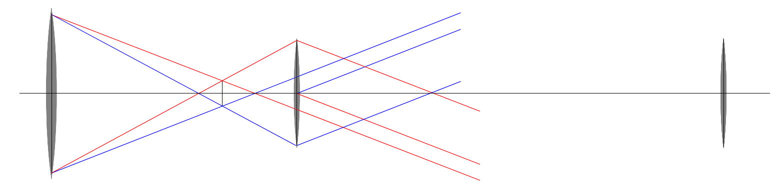


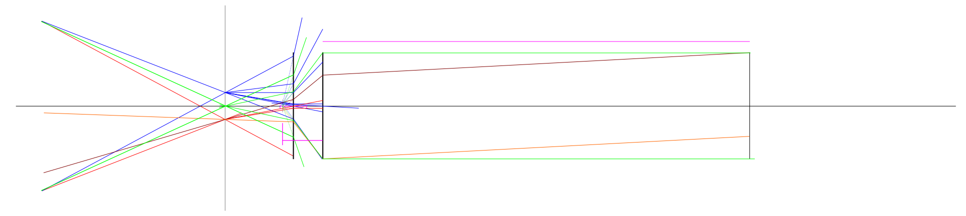


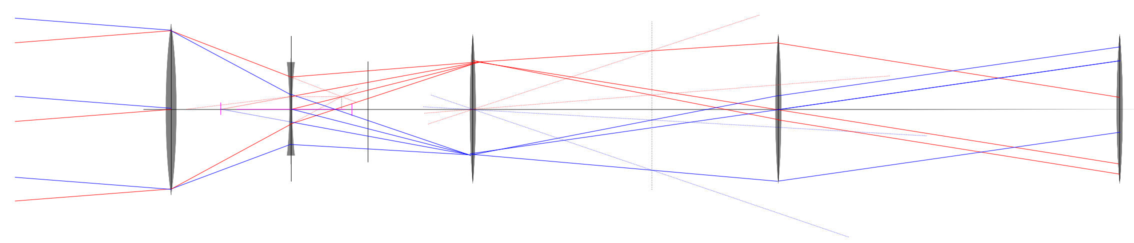


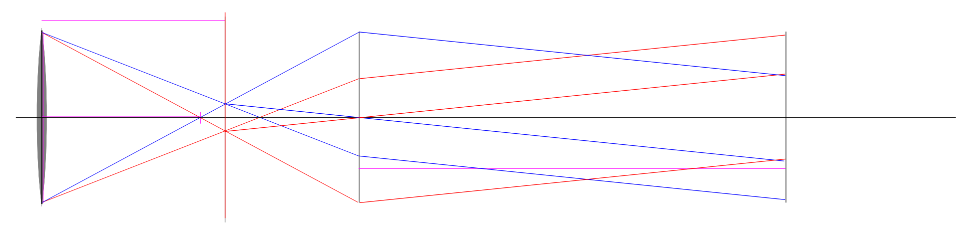
Field Lens in tube

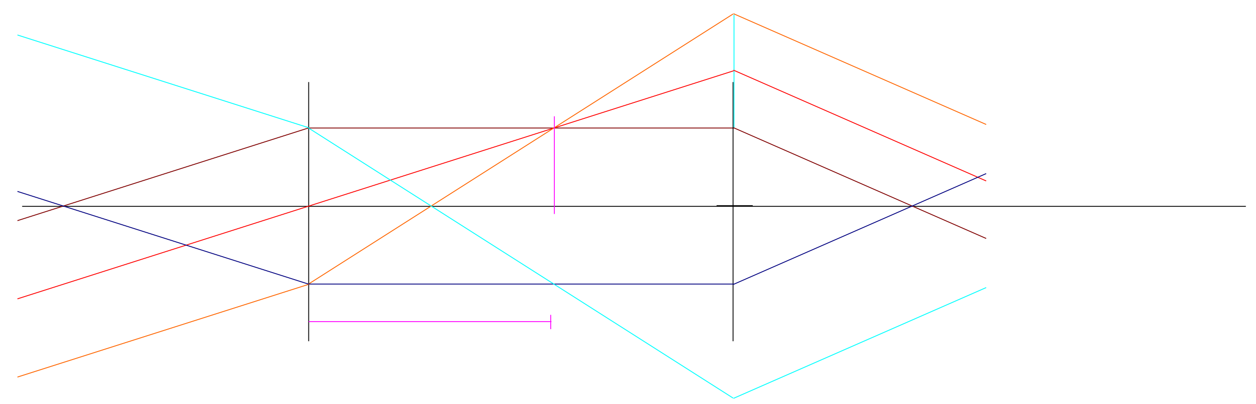


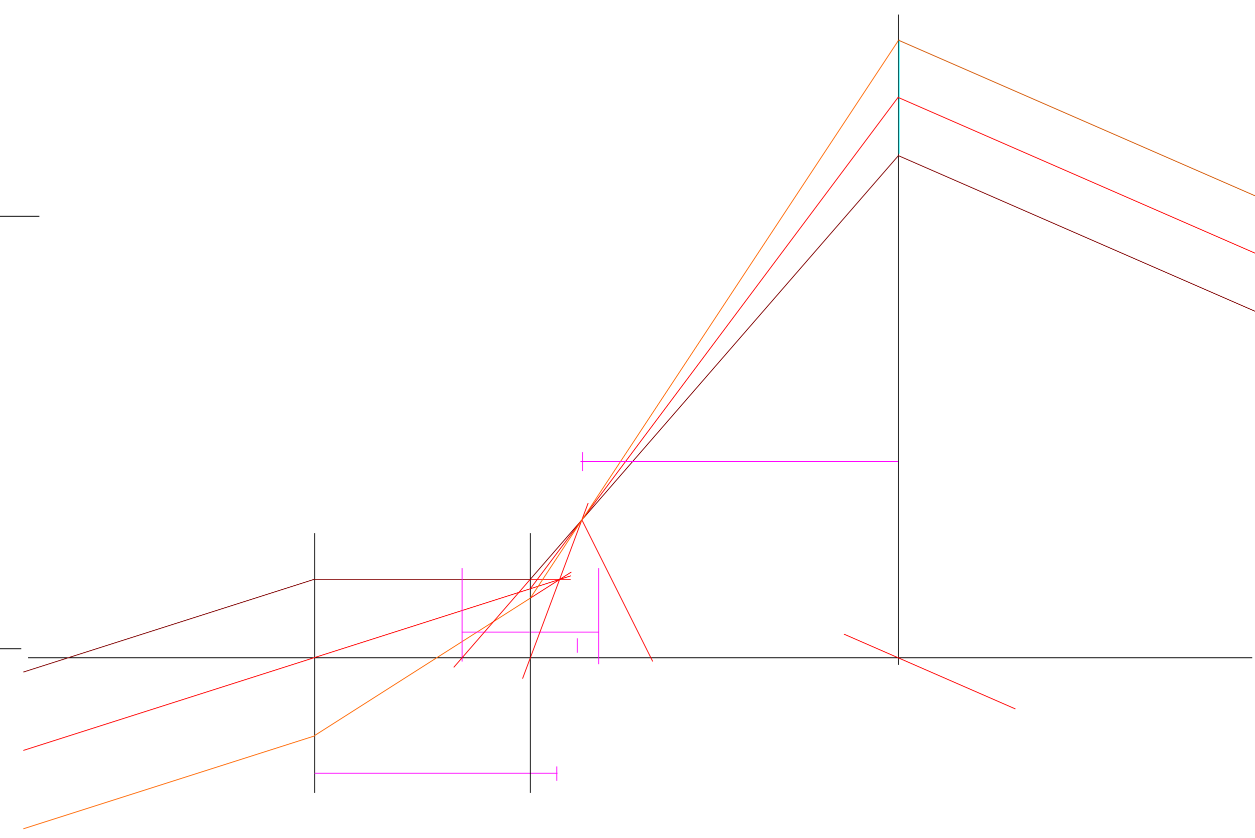


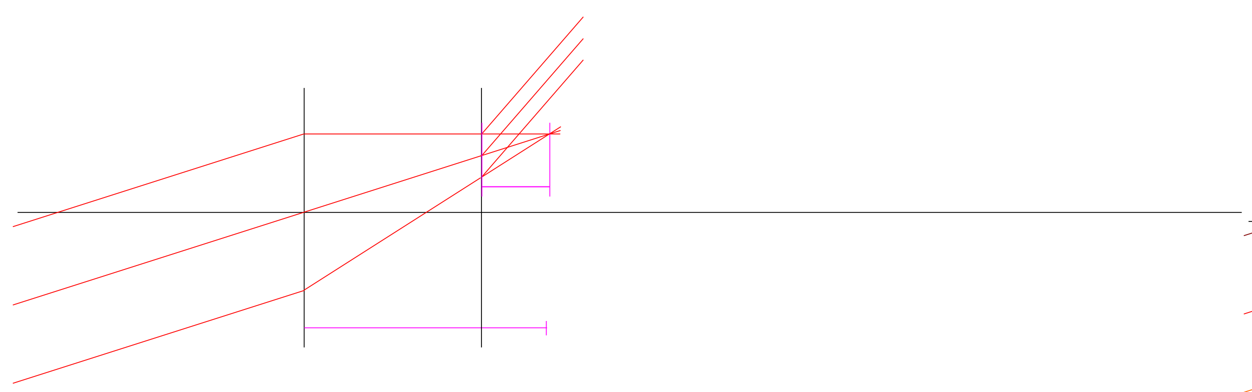


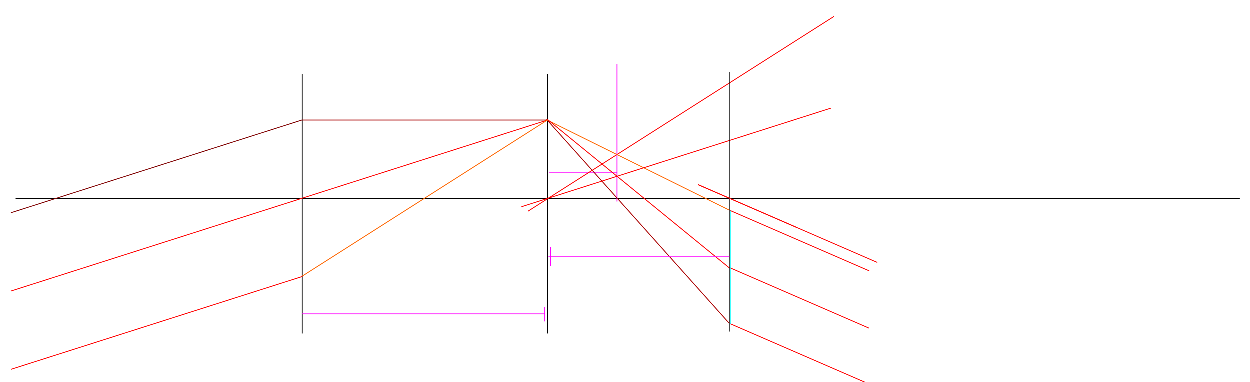


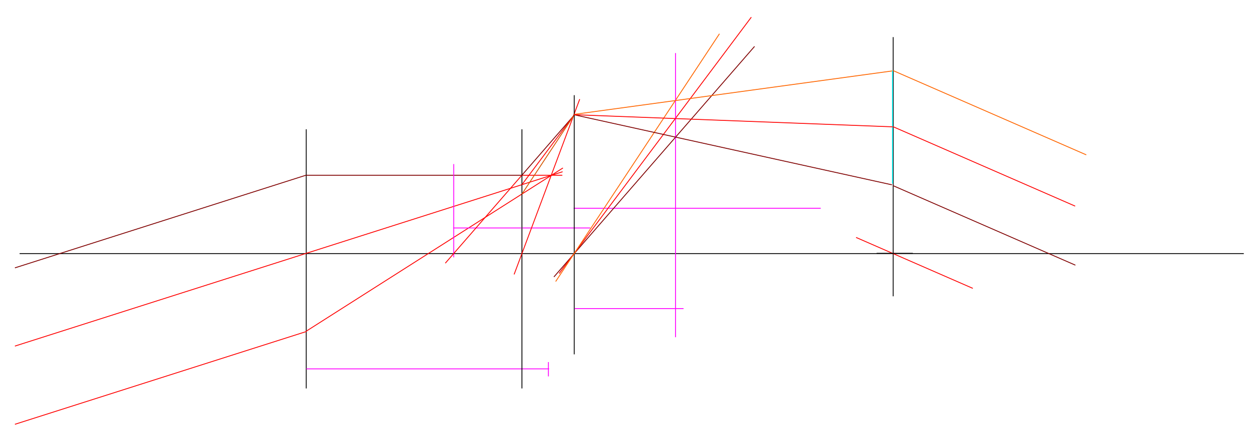


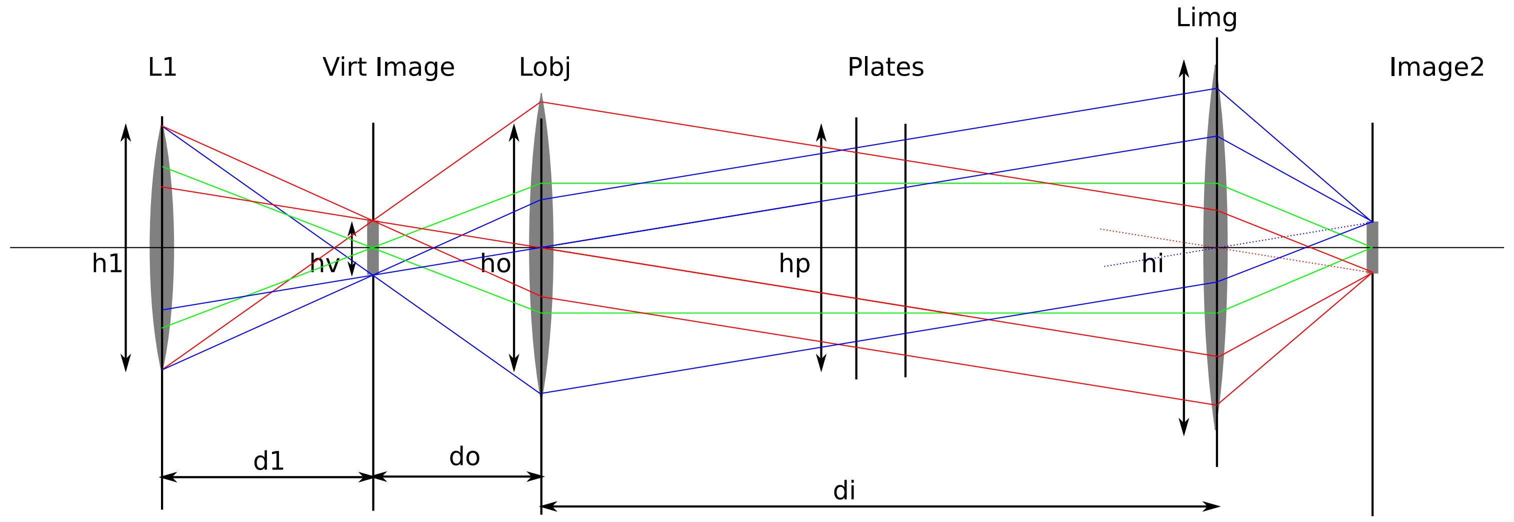








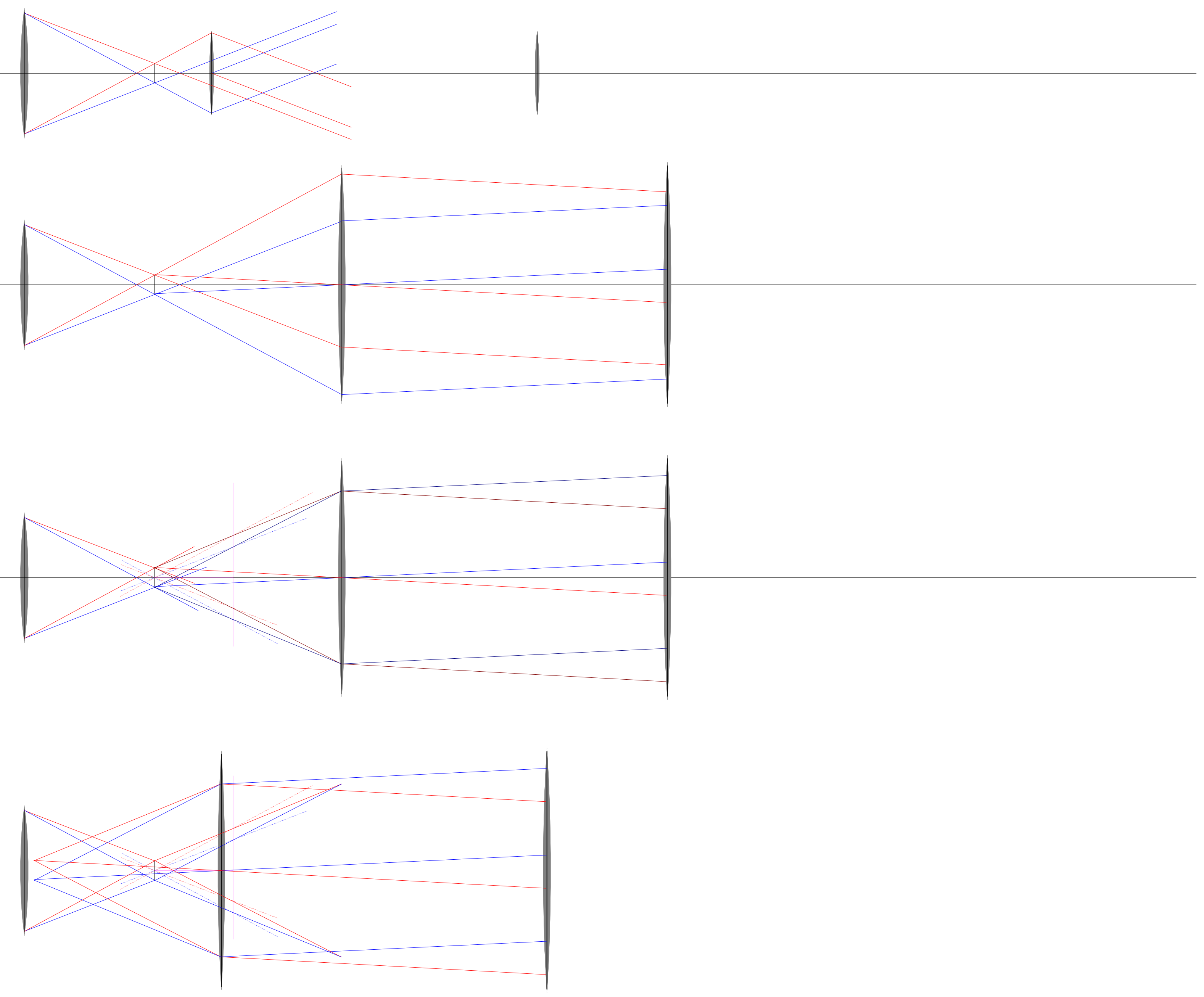


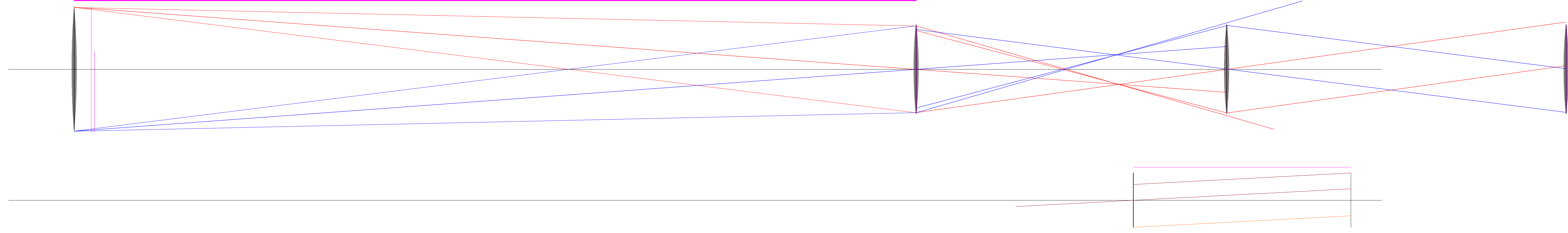


h1 ~ 75mm
d1 ~ 80mm
hv ~ 12mm (virt image)

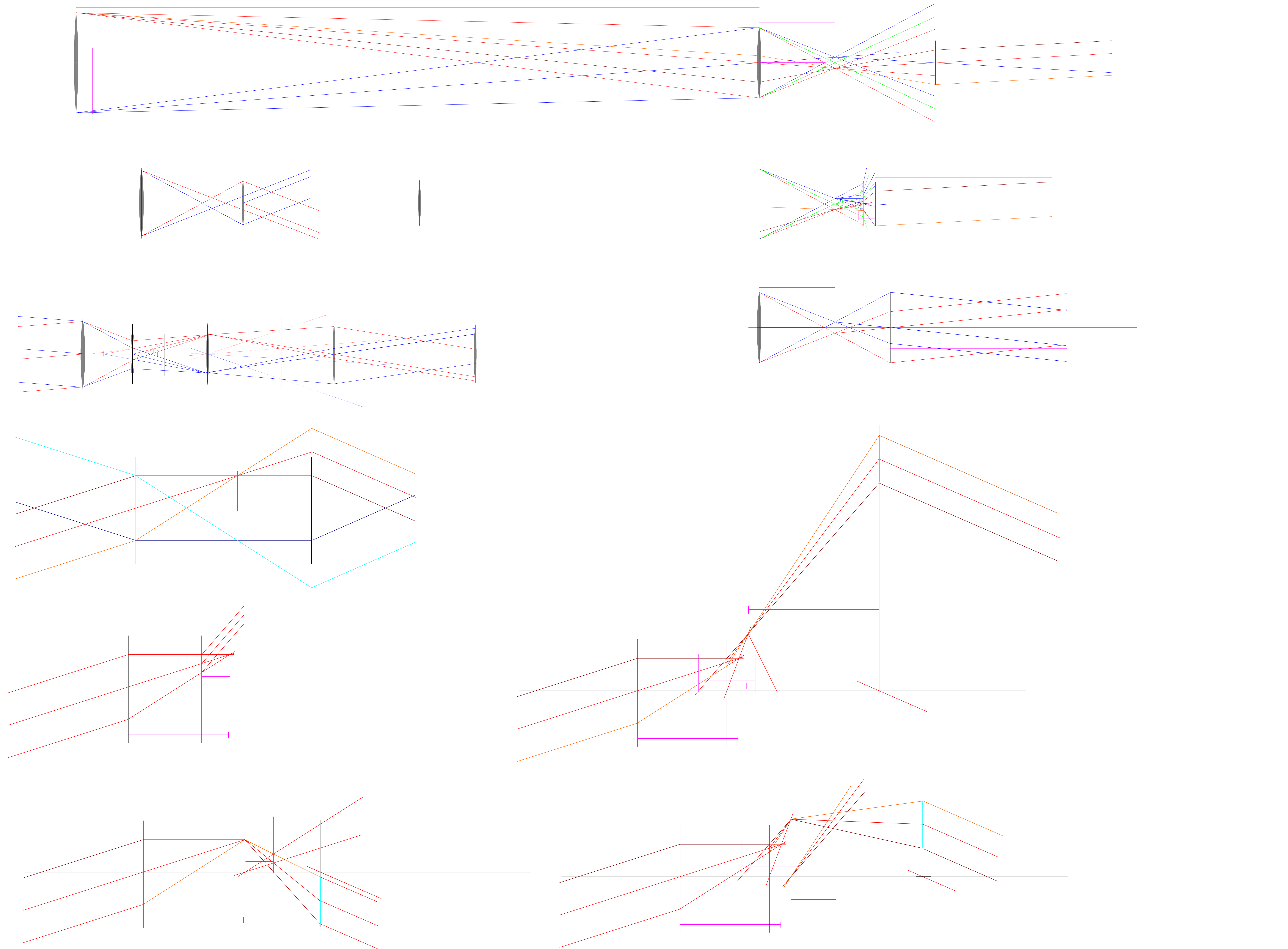
To keep all light:
ho = hv + do (h1+hv)/d1 (objective lens)
do = d1 (ho - hv)/(h1+hv) (objective lens)

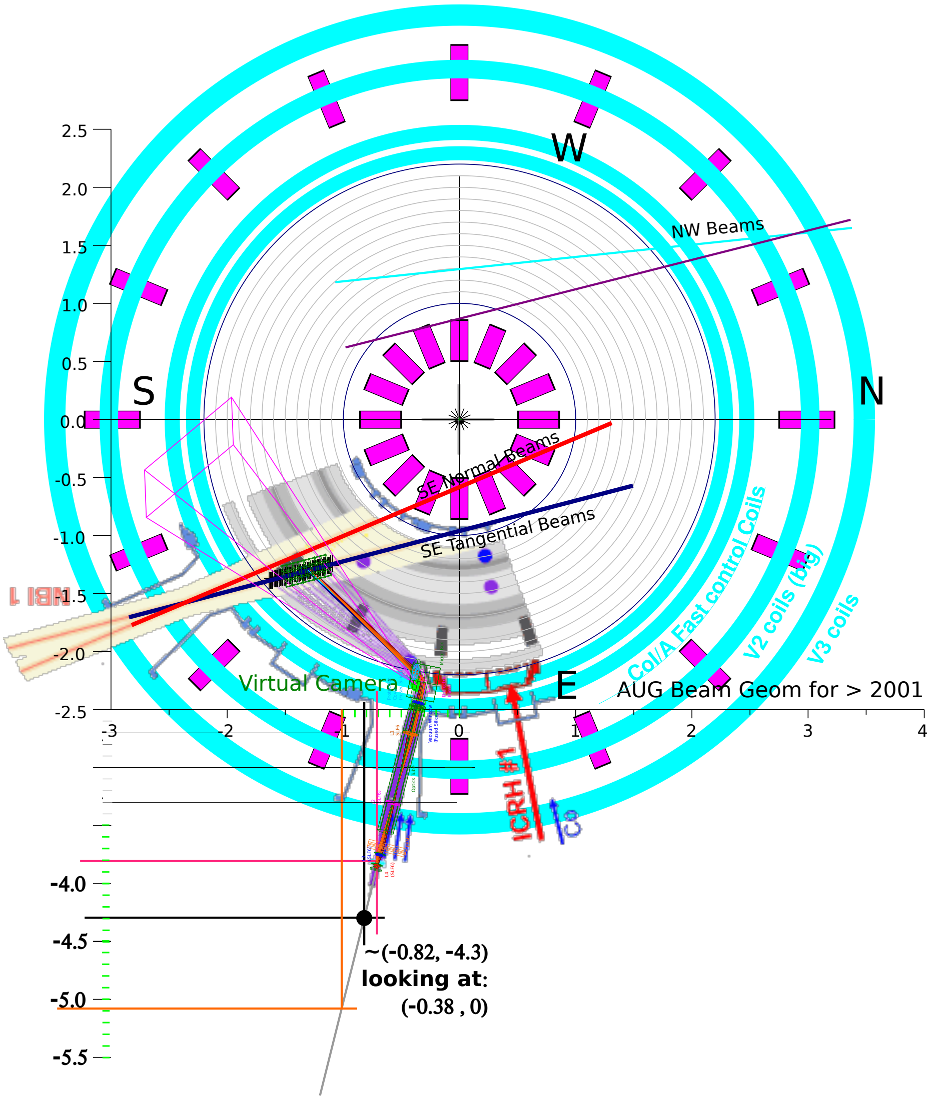
hi = h1 do/d1 - hv (1 + do/d1) + di hv/do

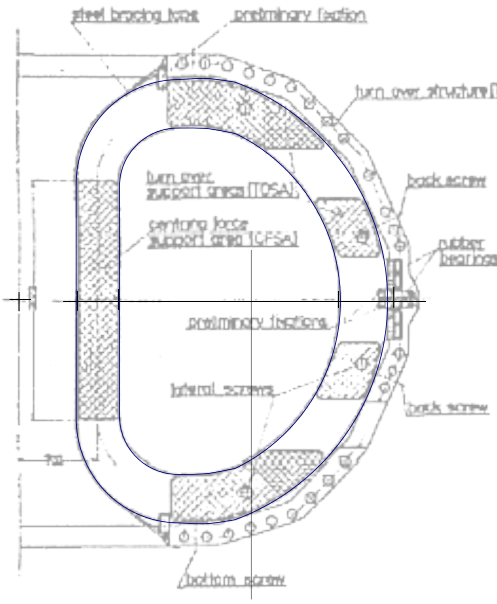


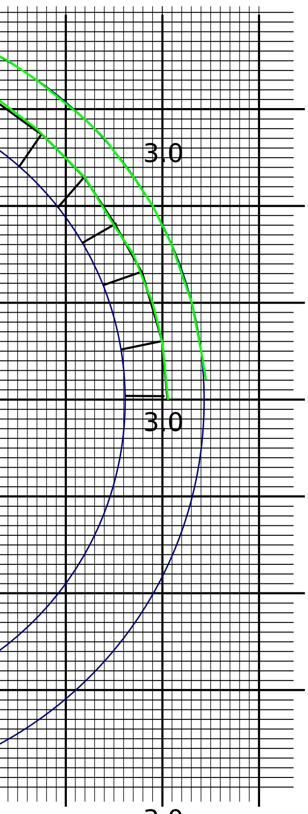


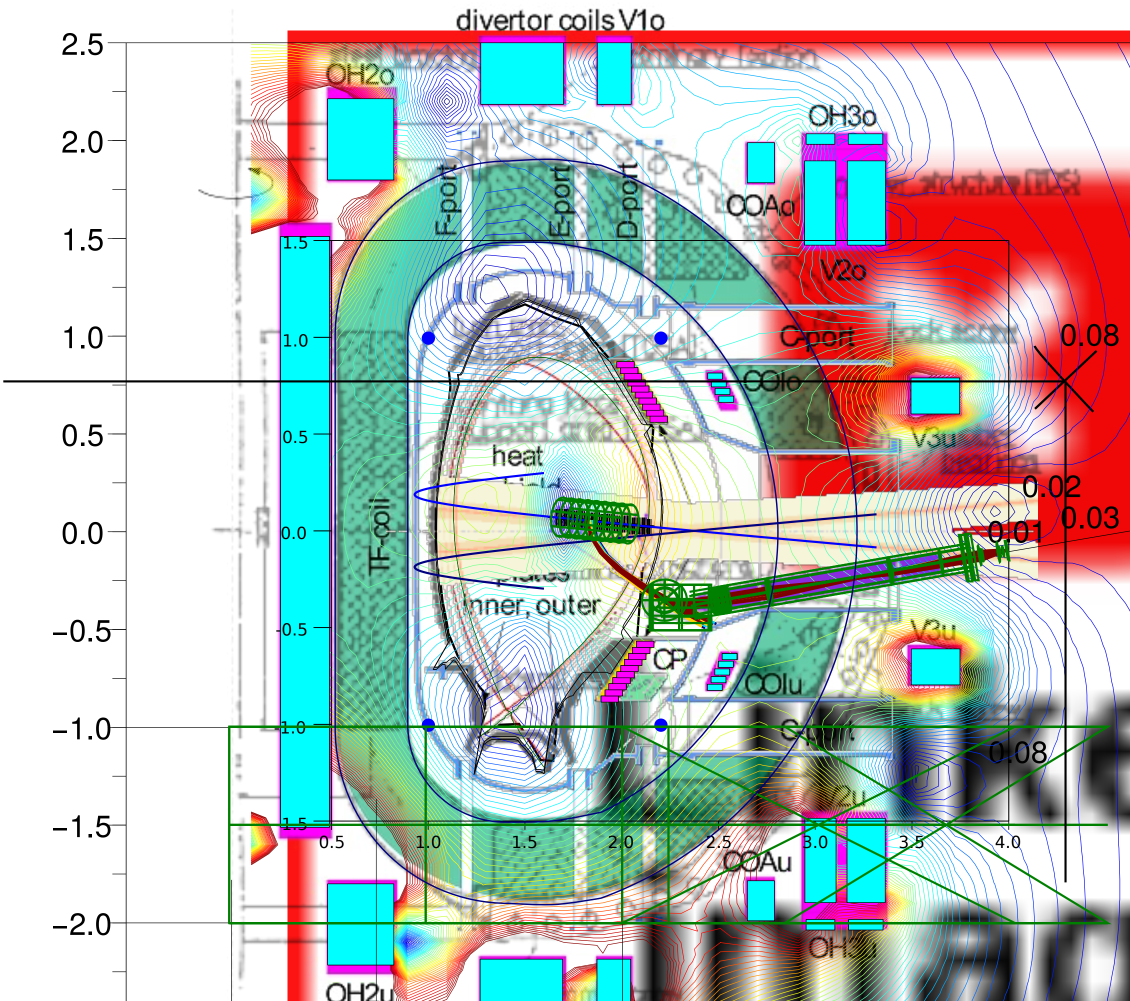
Field Lens in tube

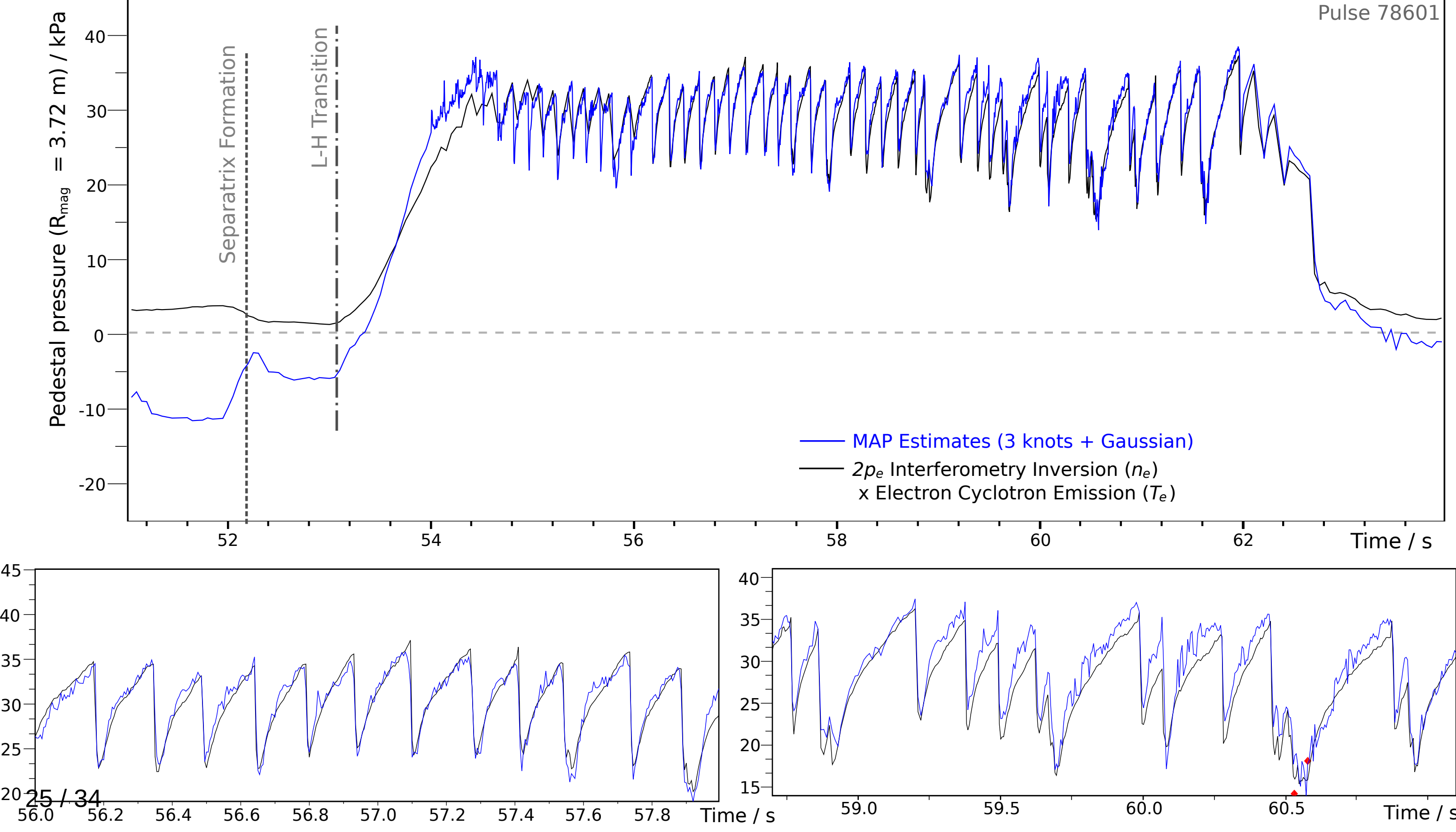



W
S
N
E
NW Beams
SE Normal Beams
SE Tangential Beams
Co/A Fast control Coils
V2 coils (big)
V3 coils
Virtual Camera
AUG Beam Geom for > 2001
ICRH #1
~(-0.82, -4.3)
looking at:
(-0.38 , 0)

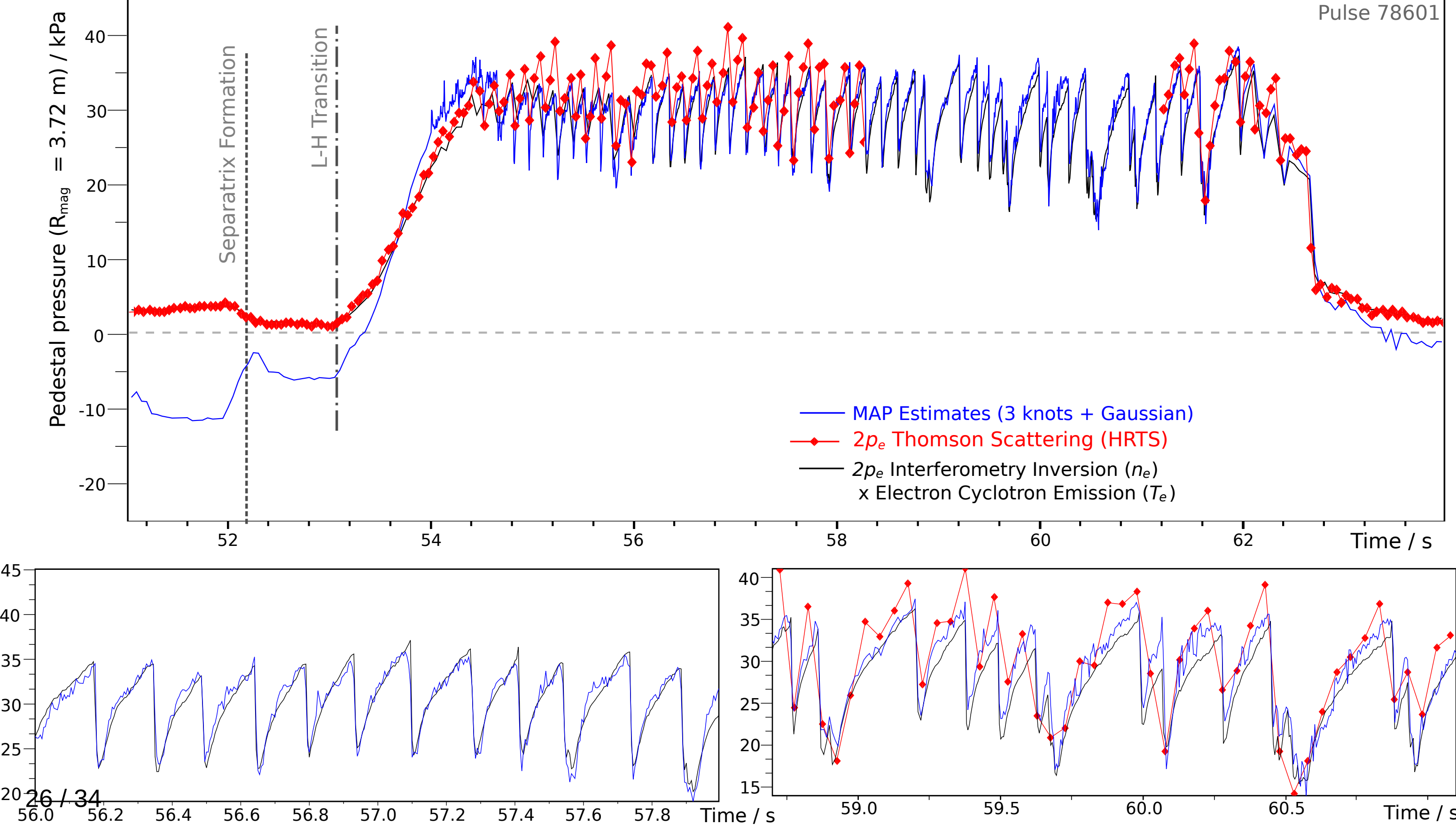

steel bracing type
preliminary fixation
turn over structure
back screw
rubber bearings
turn over support areas (TOSA)
centring force support area (CFSA)
preliminary fixations
lateral screws
back screw
bottom screw


3.0
3.0
3.0

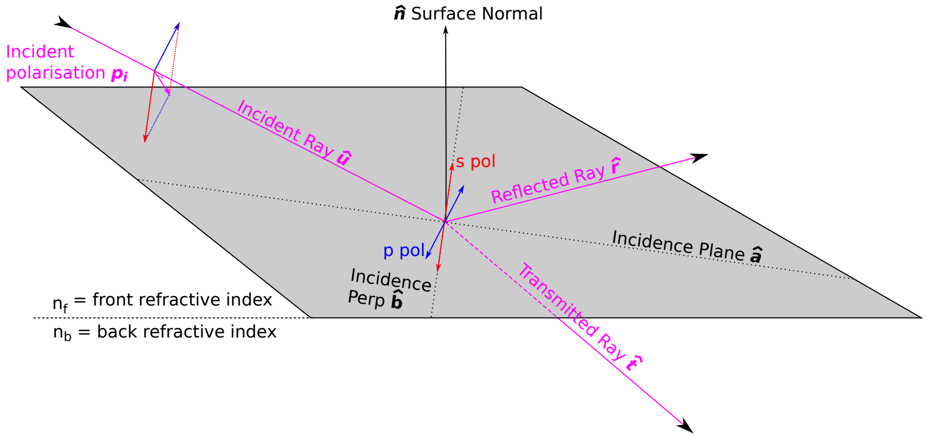

divertor coils V1o
OH2o
OH3o
F-port
E-port
D-port
COAo
V2o
C-port
COIo
V3u
heat
shield
plates
inner, outer
TF-coil
CP
COIu
V3u
COAu
OH2u
0.08
0.02
0.03
0.01
0.08



Pulse 78601
Pedestal pressure (R_{mag} = 3.72 m) / kPa
Separatrix Formation
L-H Transition
MAP Estimates (3 knots + Gaussian)
$2p_e$ Interferometry Inversion (n_e)
x Electron Cyclotron Emission (T_e)
Time / s


Pulse 78601
Pedestal pressure (R_{mag} = 3.72 m) / kPa
Separatrix Formation
L-H Transition
MAP Estimates (3 knots + Gaussian)
$2p_e$ Thomson Scattering (HRTS)
$2p_e$ Interferometry Inversion (n_e)
x Electron Cyclotron Emission (T_e)
Time / s
Time / s
Time / s

Single refractive index (non-birefringent) Reflection and Transmission



$\boldsymbol{b} = \boldsymbol{u} \times \boldsymbol{n} / |\boldsymbol{u} \times \boldsymbol{n}|$

$\boldsymbol{a} = \boldsymbol{n} \times \boldsymbol{b}$

$\mathbf{r} = \mathbf{u} - 2(\boldsymbol{u} \cdot \boldsymbol{n})\boldsymbol{n}$

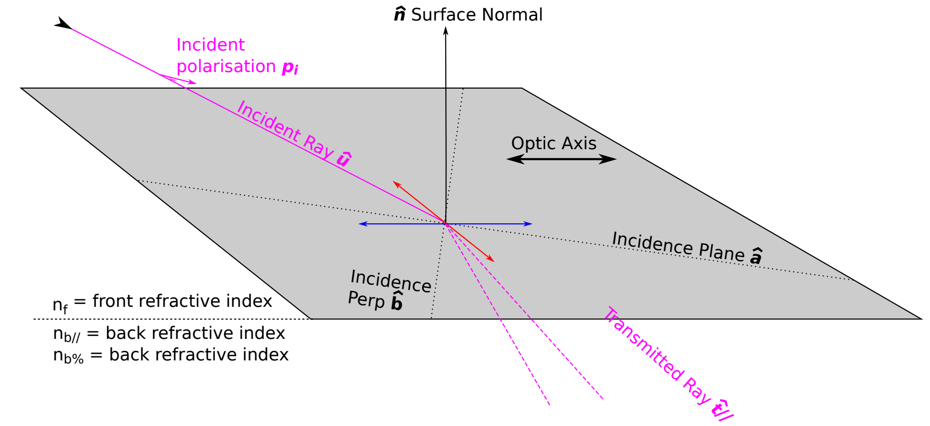
$\boldsymbol{t} = (n_f/n_b)\,(\boldsymbol{u.a})\boldsymbol{a} - \sqrt{1 - ((n_f/n_b)(\boldsymbol{u.a}))^2}\;\boldsymbol{n}$

Intensity of incident s/p polarisations:
$Isi = \boldsymbol{pi} \cdot \mathbf{b}$
$Ipi = |\boldsymbol{pi} - Isi\,\boldsymbol{b}| = \boldsymbol{pi} \cdot (\boldsymbol{b} \times \boldsymbol{u})$

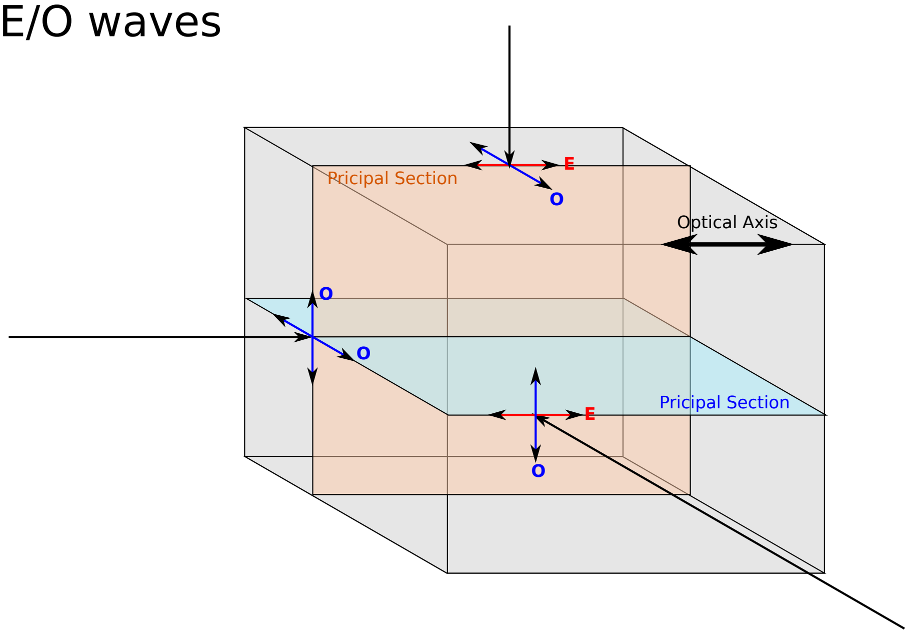
Coefficents from Fresnel equations, then:
Isr = Rs Isi   Ist = Ts Isi
Ipr = Rp Ipi   Ipt = Tp Ipi

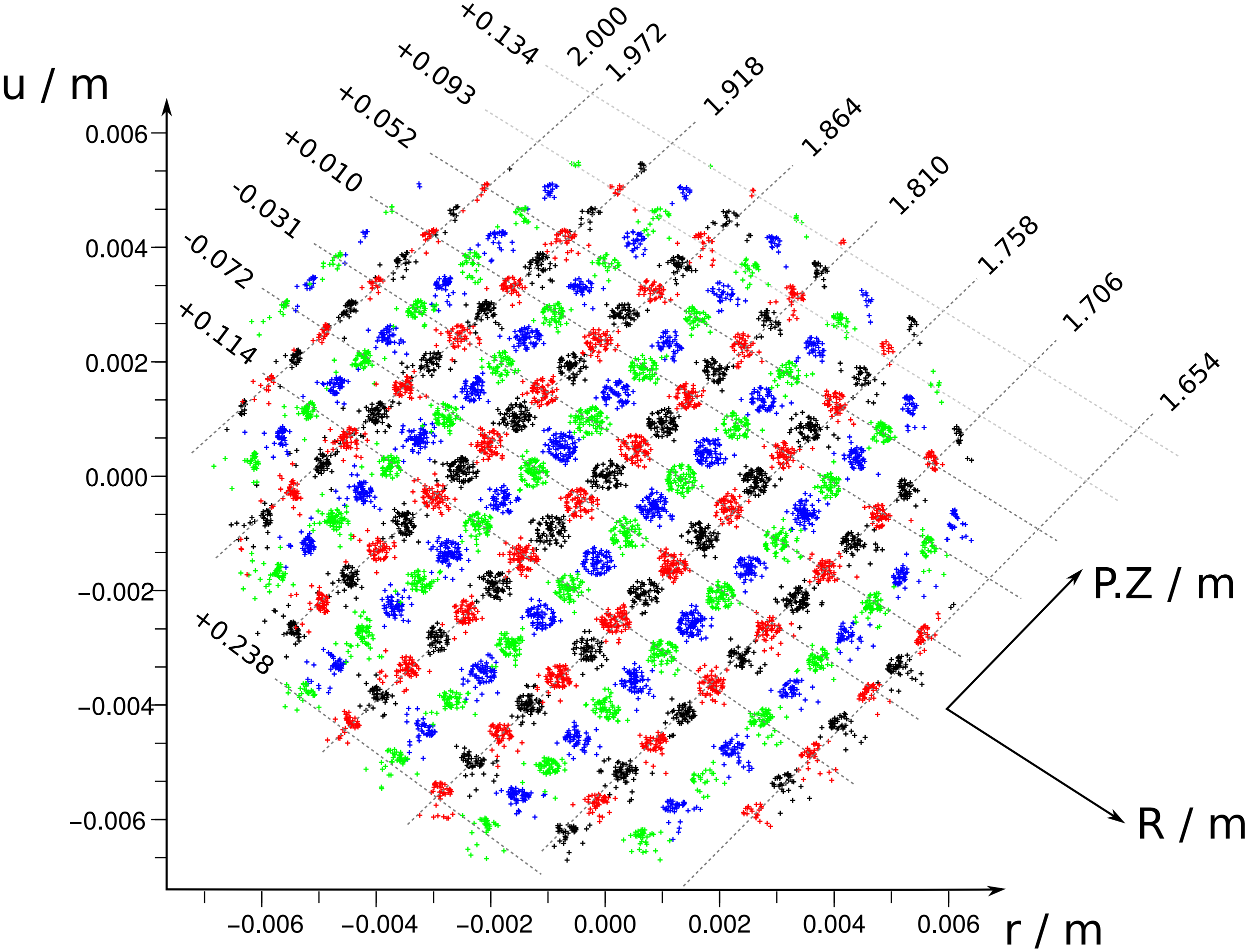
Final polarisations:
$\boldsymbol{pr} = Isr\,\boldsymbol{b} + Ipr\,(\mathbf{b} \times \mathbf{r})$
$\boldsymbol{pt} = Ist\,\boldsymbol{b} + Ipt\,(\boldsymbol{b} \times \boldsymbol{t})$

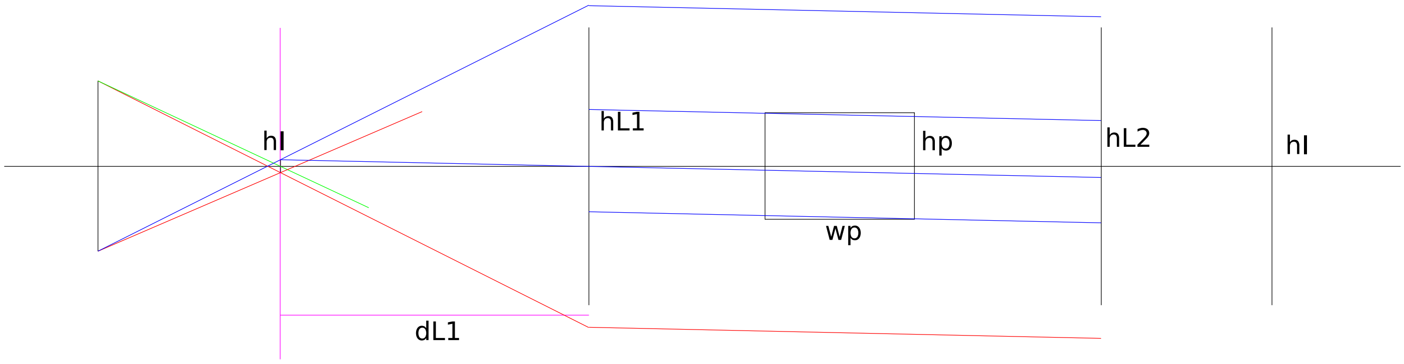
Birefringent, full transmission. Optic Axis in surface plane.

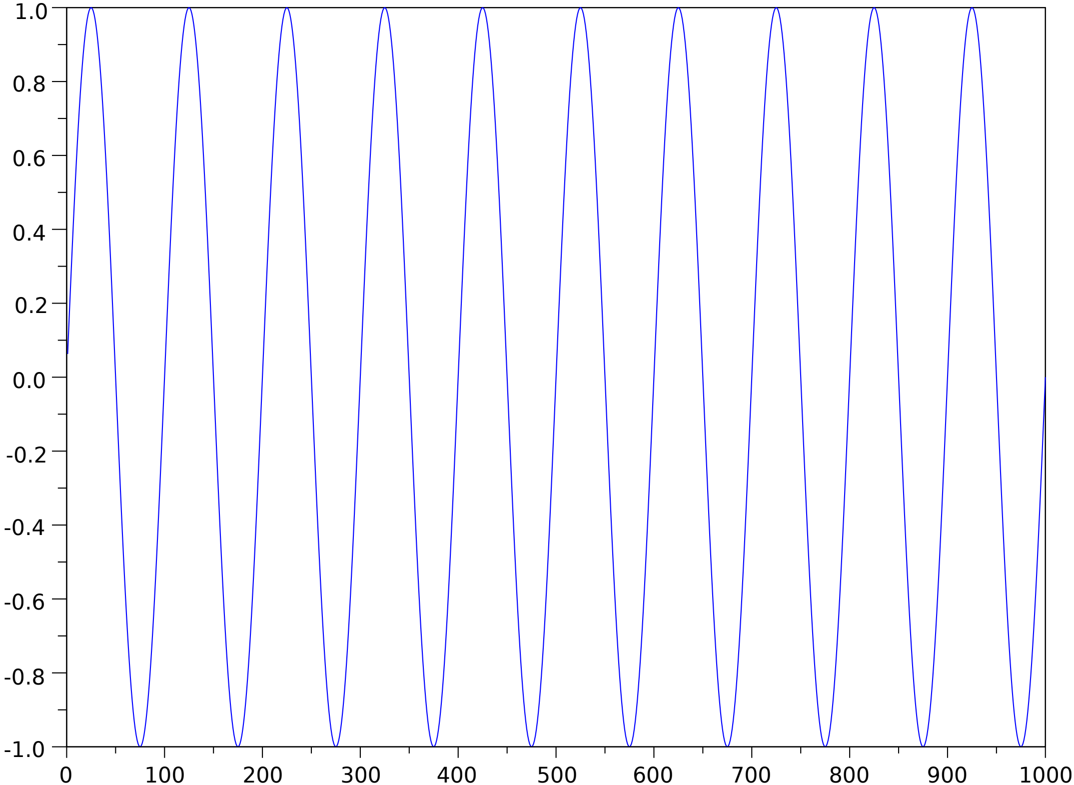


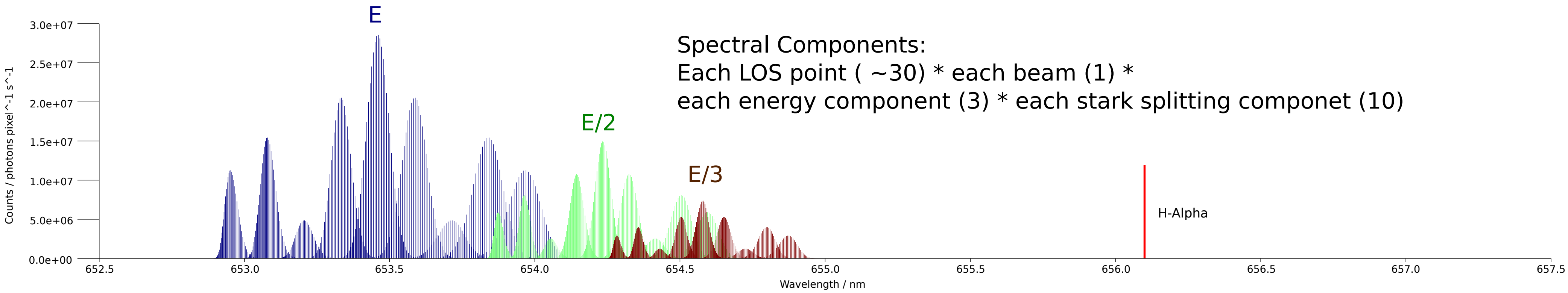
Excat Definition of Optic Axis, Principal plane(s) and E/O waves

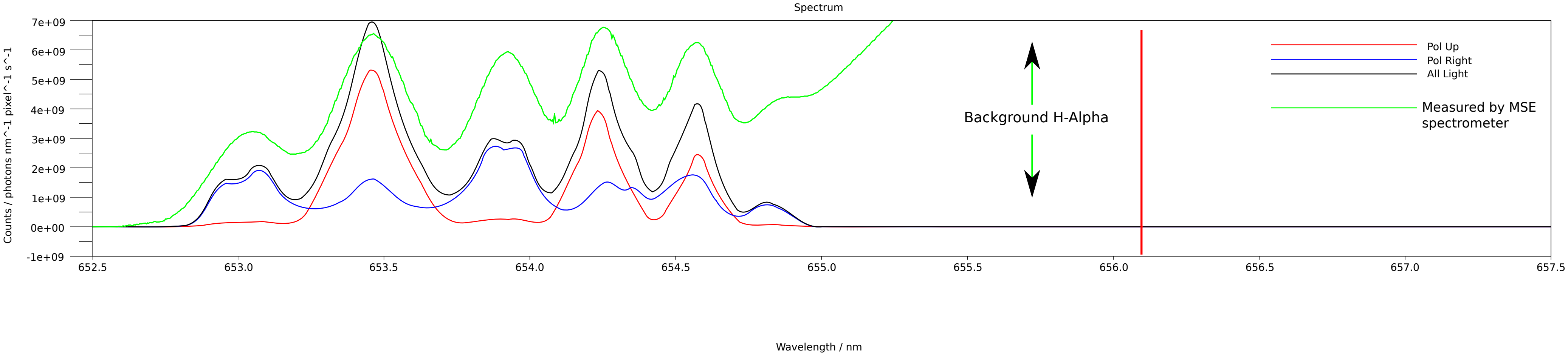


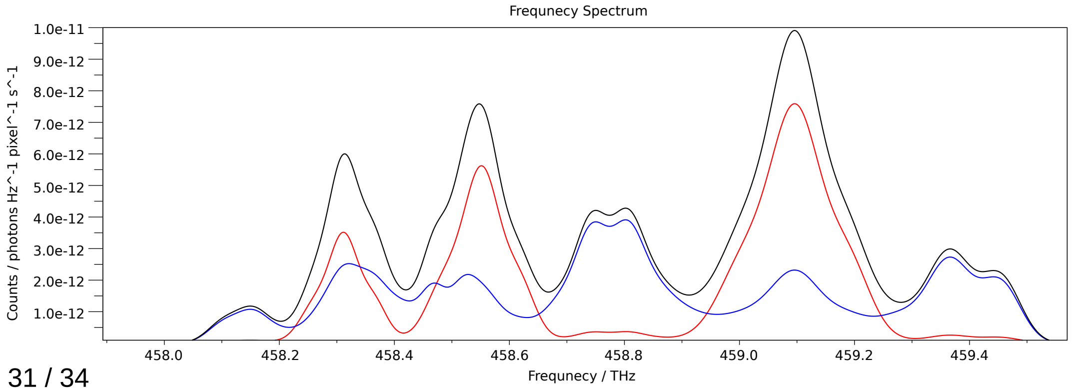

u / m
0.006
0.004
0.002
0.000
−0.002
−0.004
−0.006
r / m
−0.006
−0.004
−0.002
0.000
0.002
0.004
0.006
+0.134
+0.093
+0.052
+0.010
-0.031
-0.072
+0.114
+0.238
2.000
1.972
1.918
1.864
1.810
1.758
1.706
1.654
P.Z / m
R / m

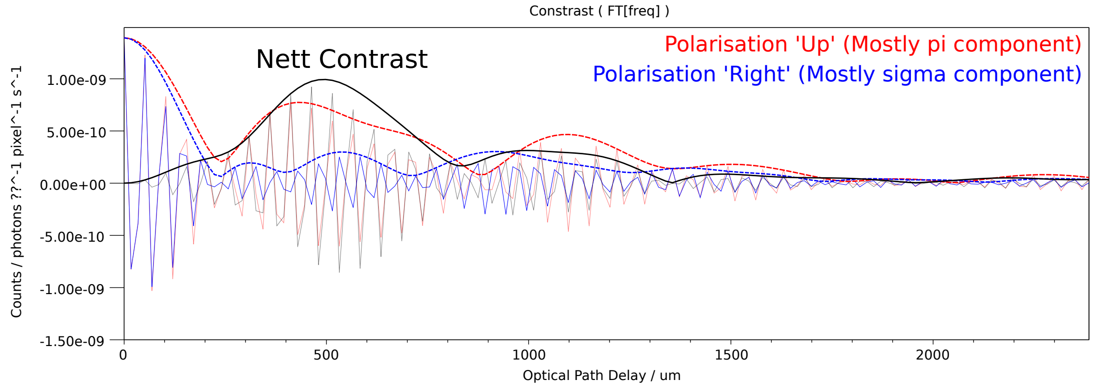

hI
hL1
hp
hL2
hI
wp
dL1

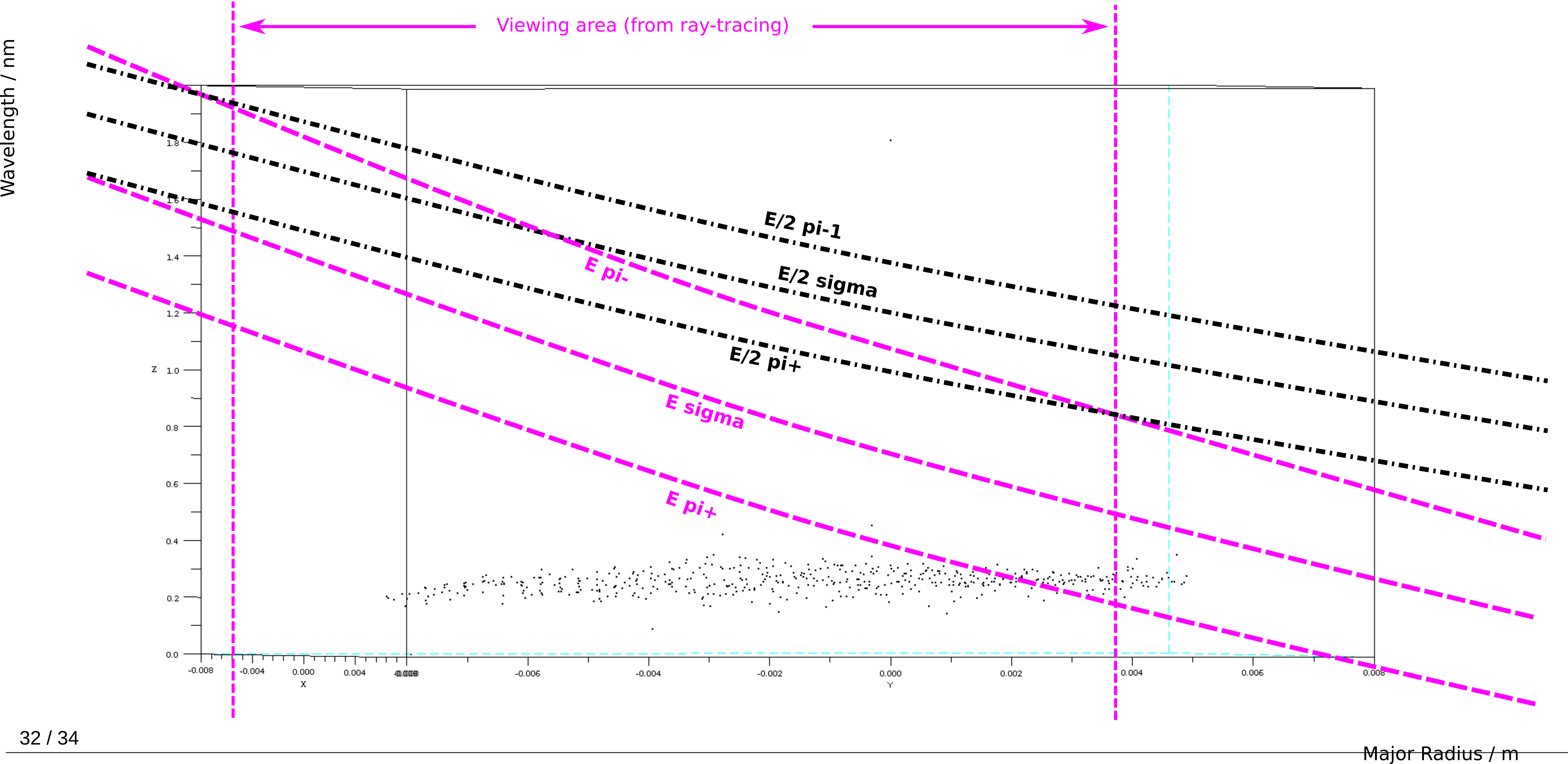

1.0
0.8
0.6
0.4
0.2
0.0
-0.2
-0.4
-0.6
-0.8
-1.0
0
100
200
300
400
500
600
700
800
900
1000


E
E/2
E/3
Spectral Components:
Each LOS point (~30) * each beam (1) *
each energy component (3) * each stark splitting componet (10)
H-Alpha
Counts / photons pixel^-1 s^-1
Wavelength / nm

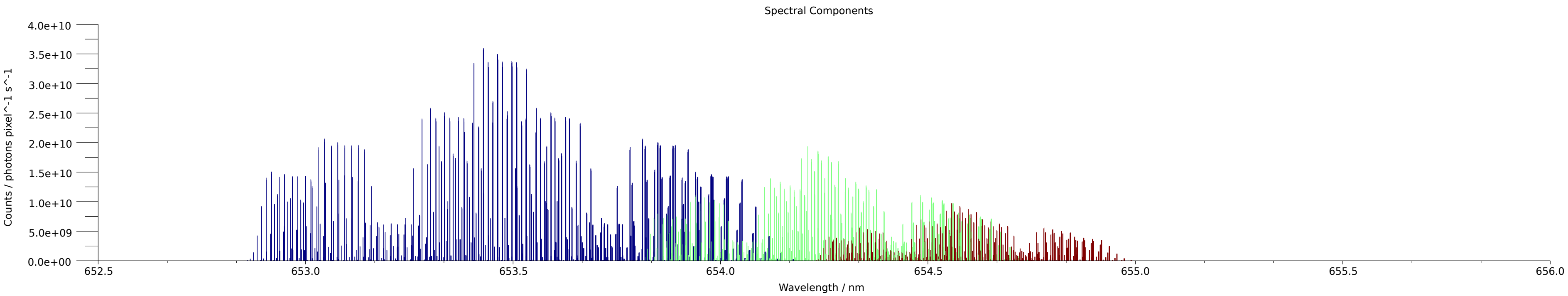

Spectrum
Pol Up
Pol Right
All Light
Measured by MSE spectrometer
Background H-Alpha
Counts / photons nm^-1 pixel^-1 s^-1
Wavelength / nm

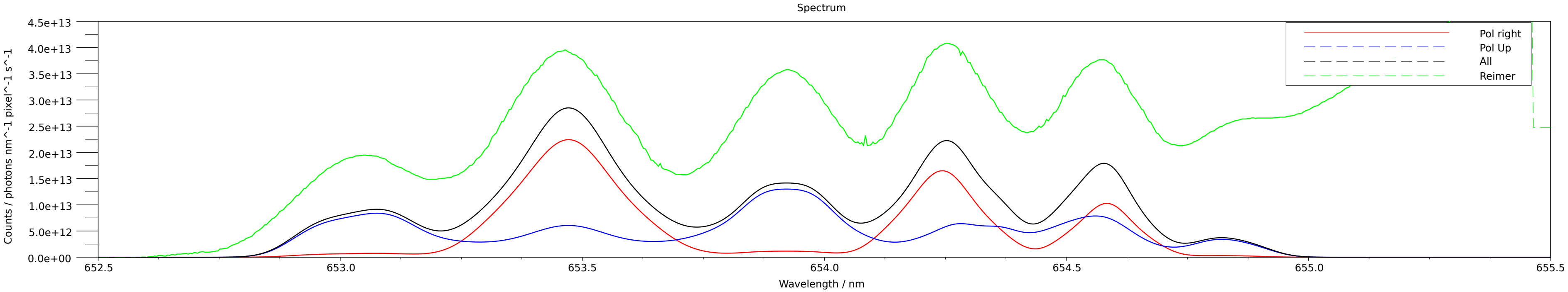

Frequency Spectrum
Counts / photons Hz^-1 pixel^-1 s^-1
Frequency / THz

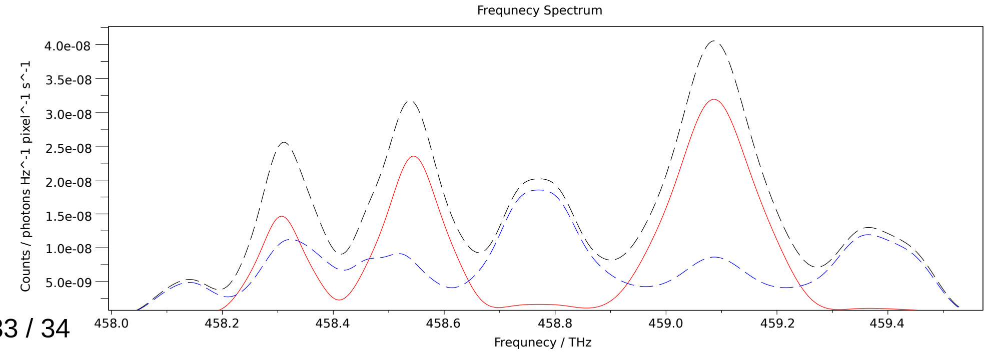

Constrast (FT[freq])
Nett Contrast
Polarisation 'Up' (Mostly pi component)
Polarisation 'Right' (Mostly sigma component)
Counts / photons ??^-1 pixel^-1 s^-1
Optical Path Delay / um

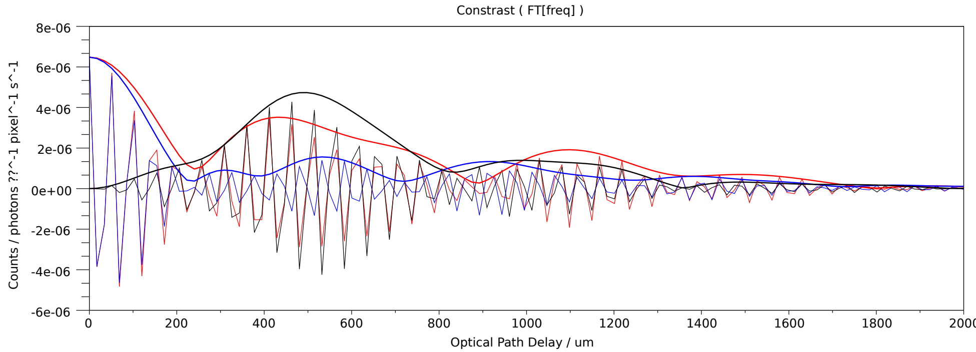


Viewing area (from ray-tracing)
Wavelength / nm
Major Radius / m
E/2 pi-1
E/2 sigma
E/2 pi+
E pi-
E sigma
E pi+


Spectral Components
Counts / photons pixel^-1 s^-1
Wavelength / nm


Spectrum
Counts / photons nm^-1 pixel^-1 s^-1
Wavelength / nm
Pol right
Pol Up
All
Reimer


Frequnecy Spectrum
Counts / photons Hz^-1 pixel^-1 s^-1
Frequnecy / THz


Constrast (FT[freq])
Counts / photons ??^-1 pixel^-1 s^-1
Optical Path Delay / um