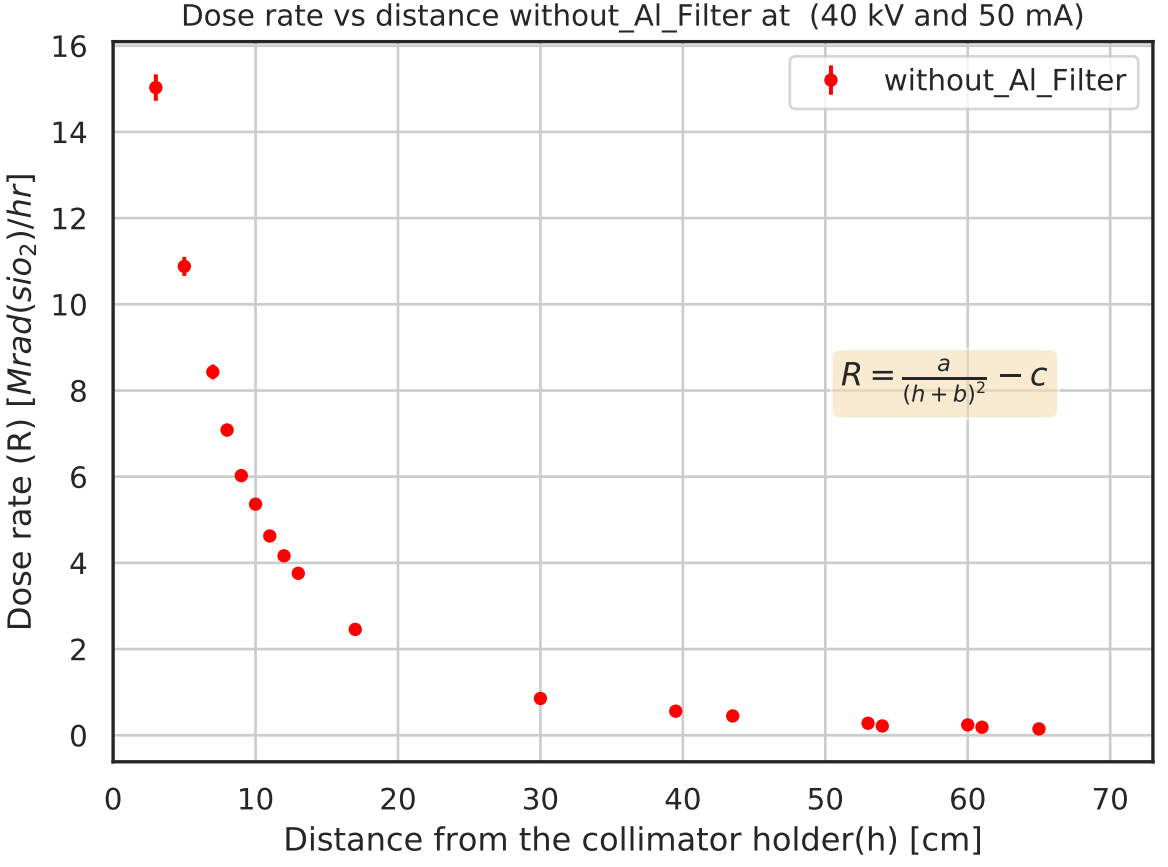
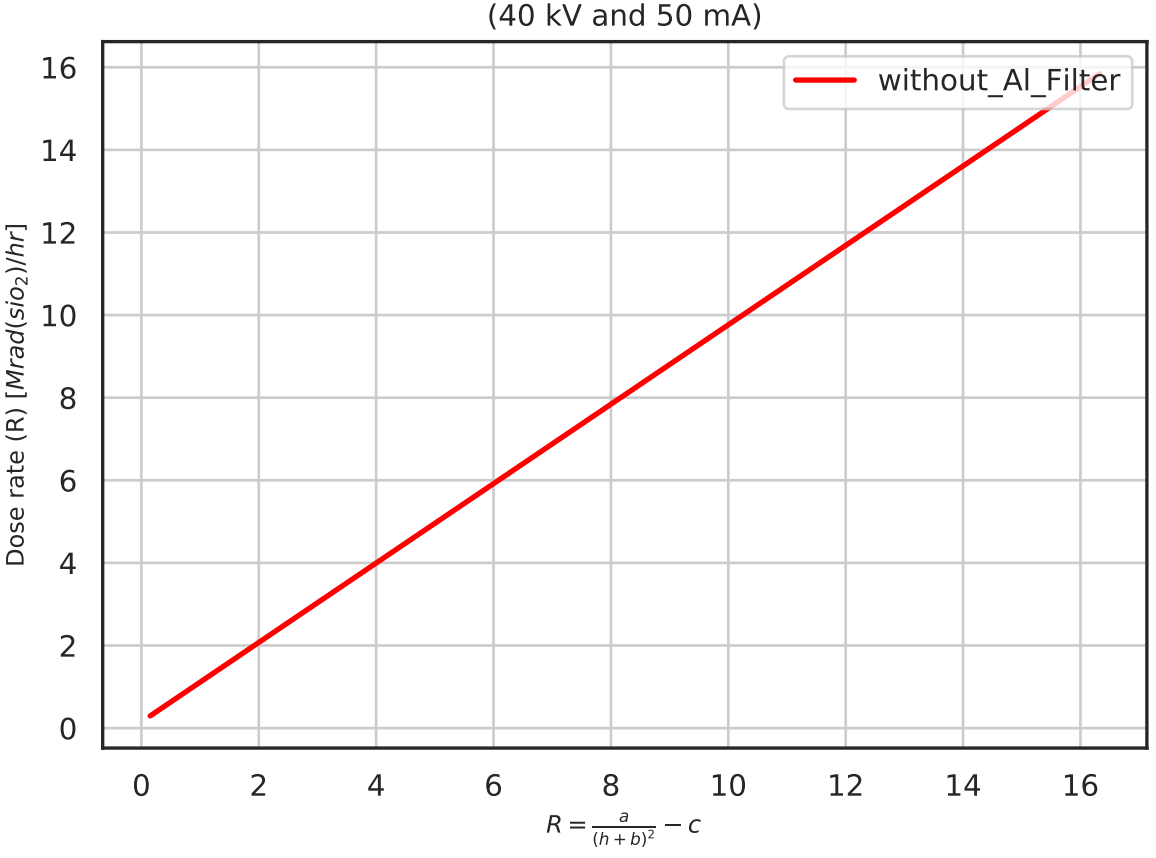
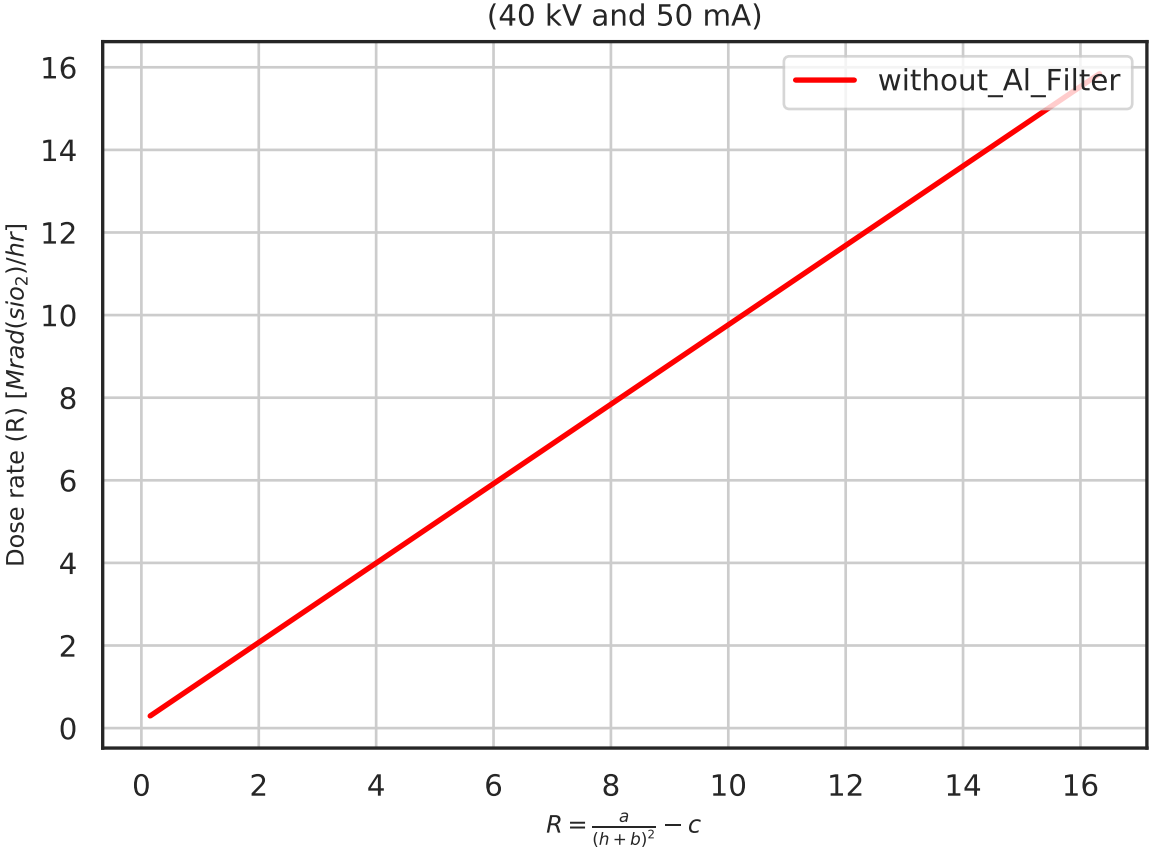
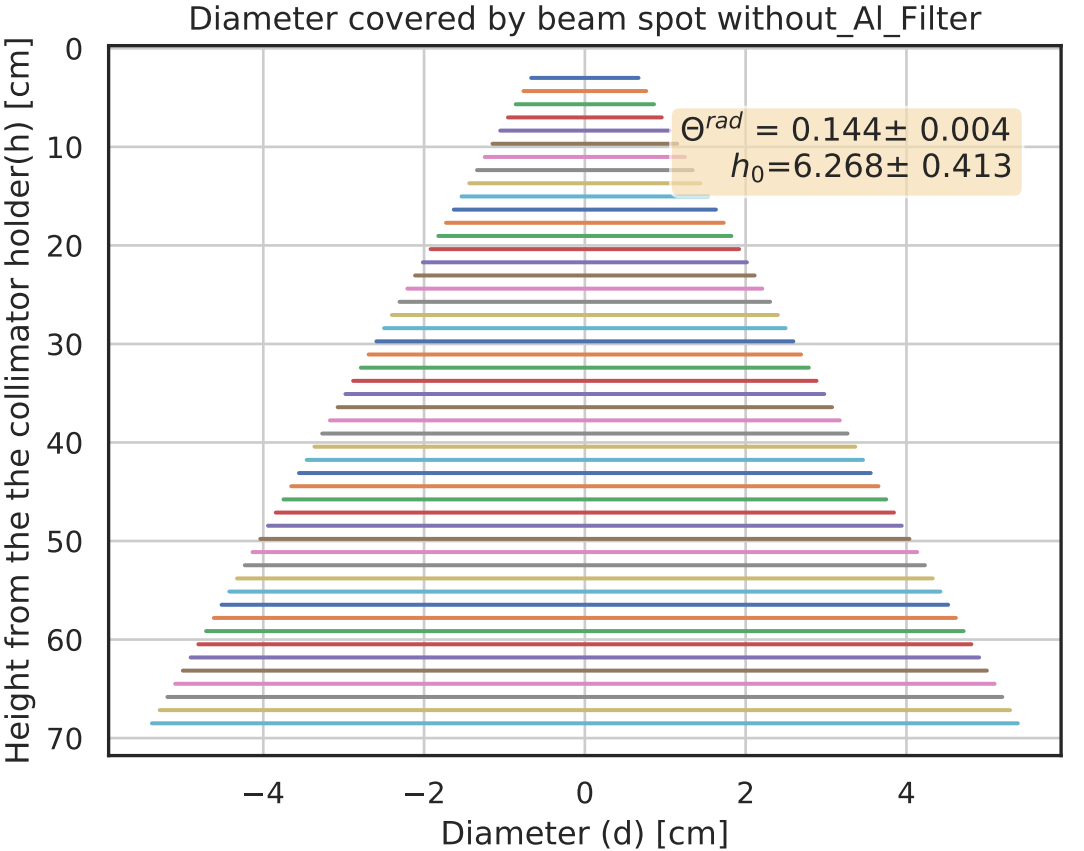
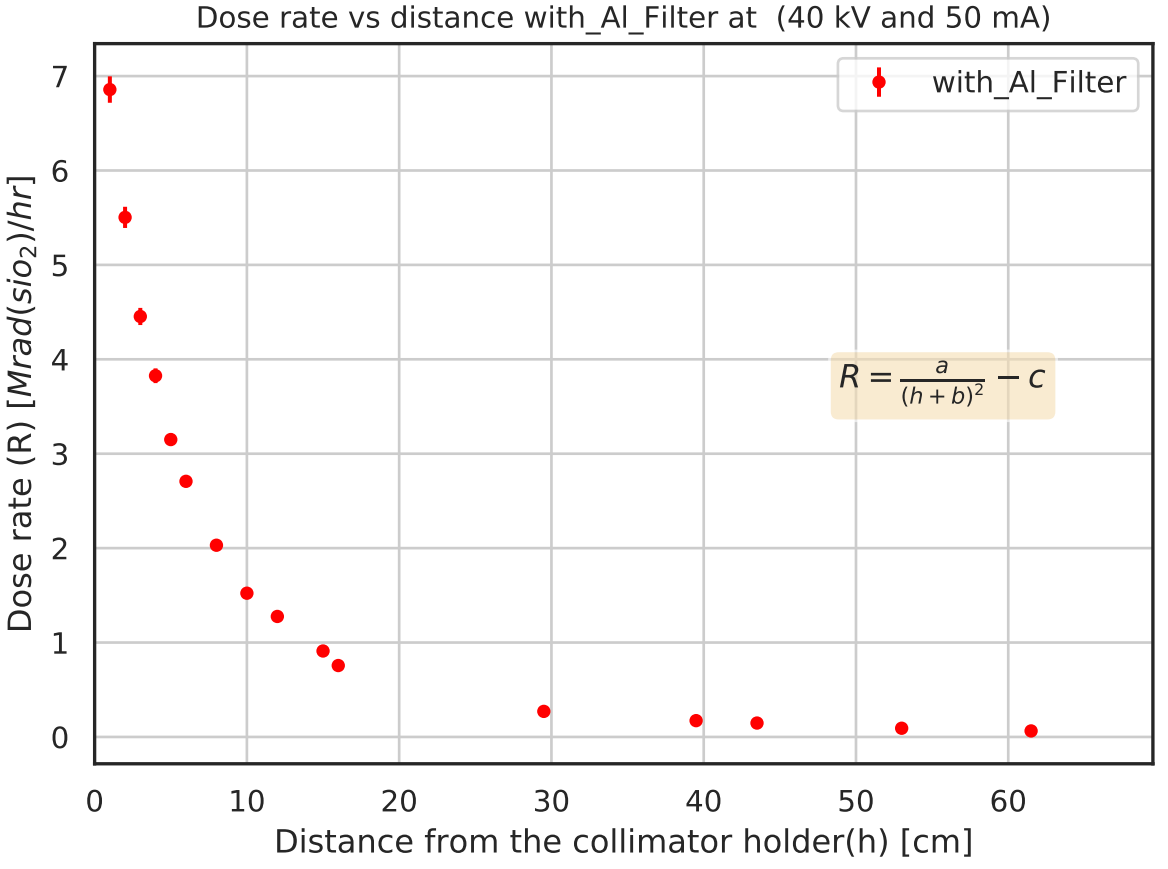
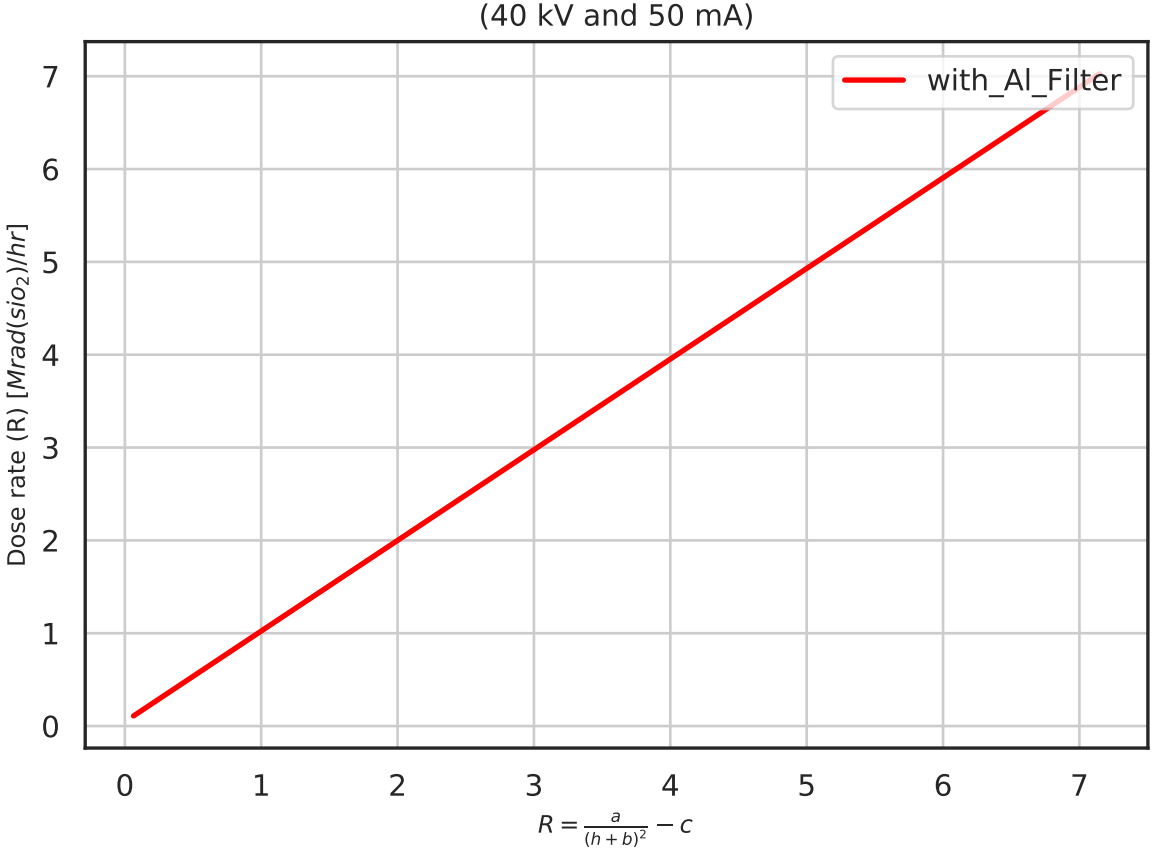

Dose rate vs distance without_Al_Filter at (40 kV and 50 mA)
without_Al_Filter
$R = \frac{a}{(h+b)^2} - c$
Dose rate (R) [$Mrad(sio_2)/hr$]
Distance from the collimator holder(h) [cm]
0
2
4
6
8
10
12
14
16
0
10
20
30
40
50
60
70

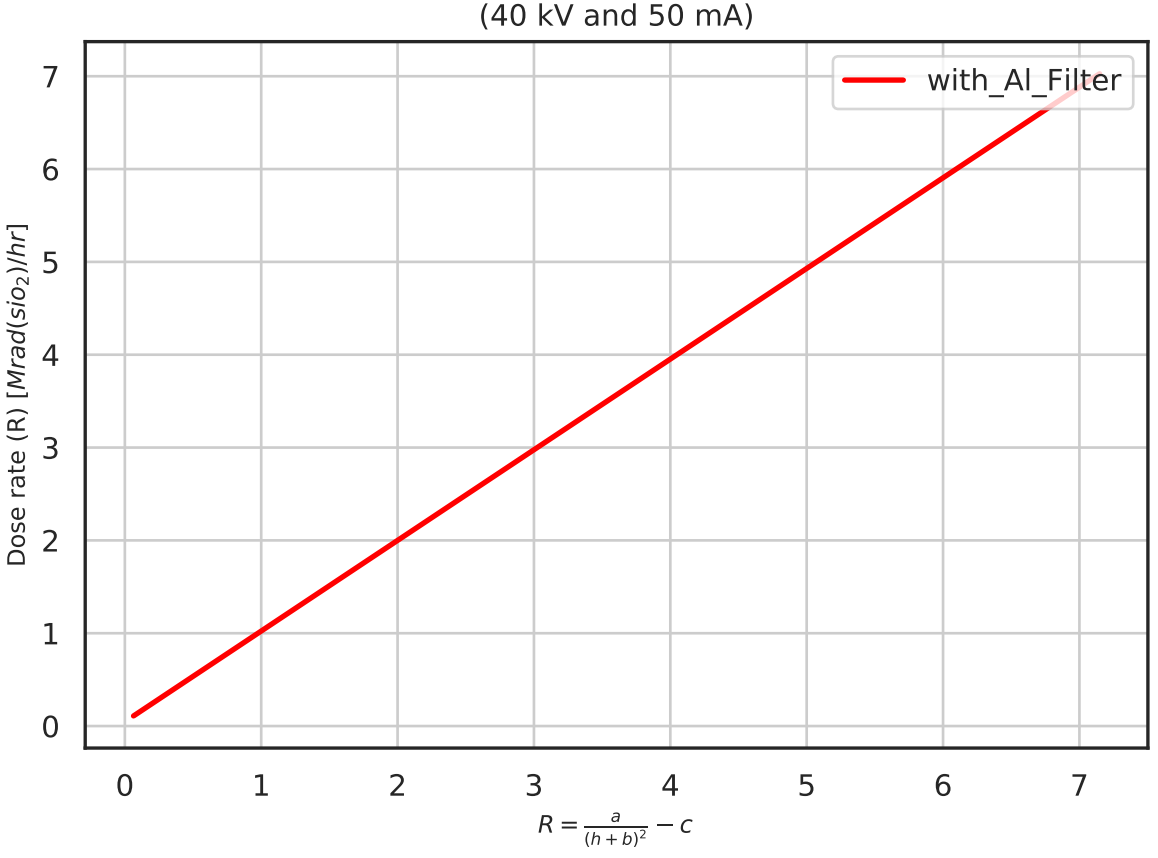

(40 kV and 50 mA)
without_Al_Filter
Dose rate (R) [$Mrad(sio_2)/hr$]
$R = \frac{a}{(h+b)^2} - c$
0
2
4
6
8
10
12
14
16

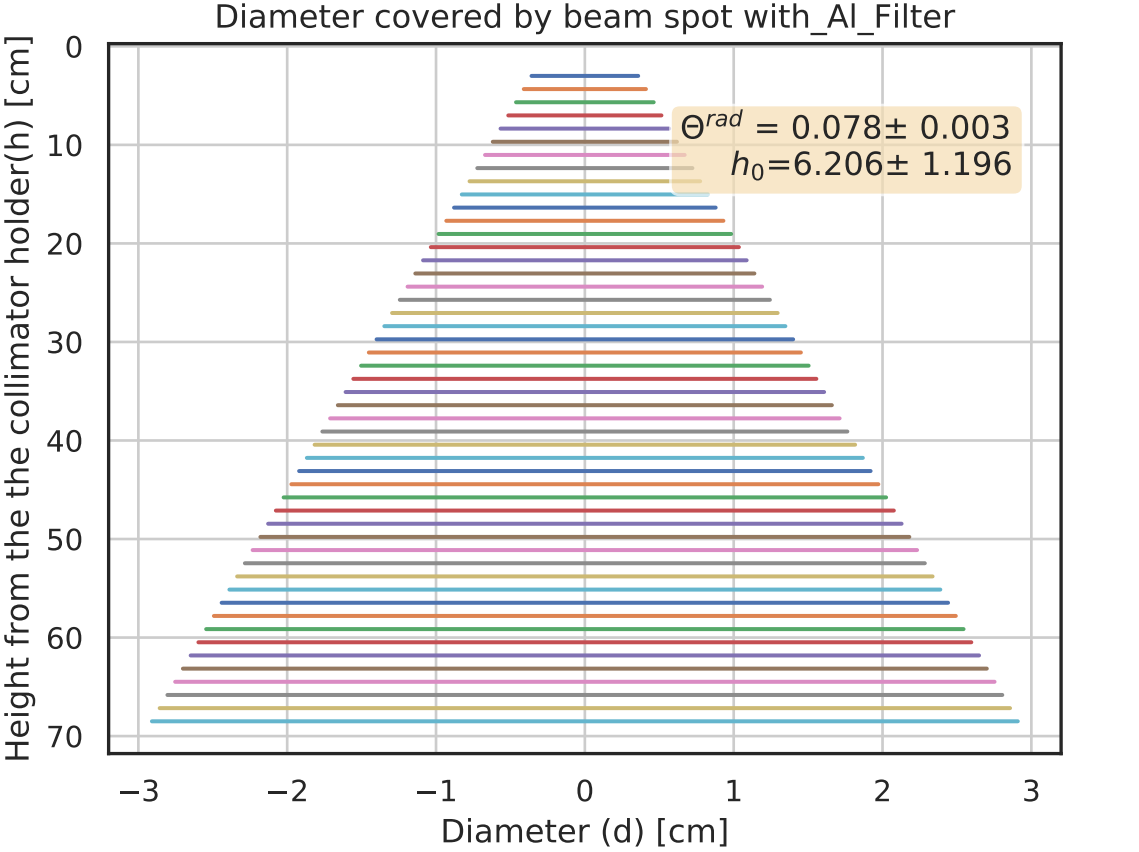

(40 kV and 50 mA)
without_Al_Filter
Dose rate (R) [$Mrad(sio_2)/hr$]
$R = \frac{a}{(h+b)^2} - c$
0
2
4
6
8
10
12
14
16

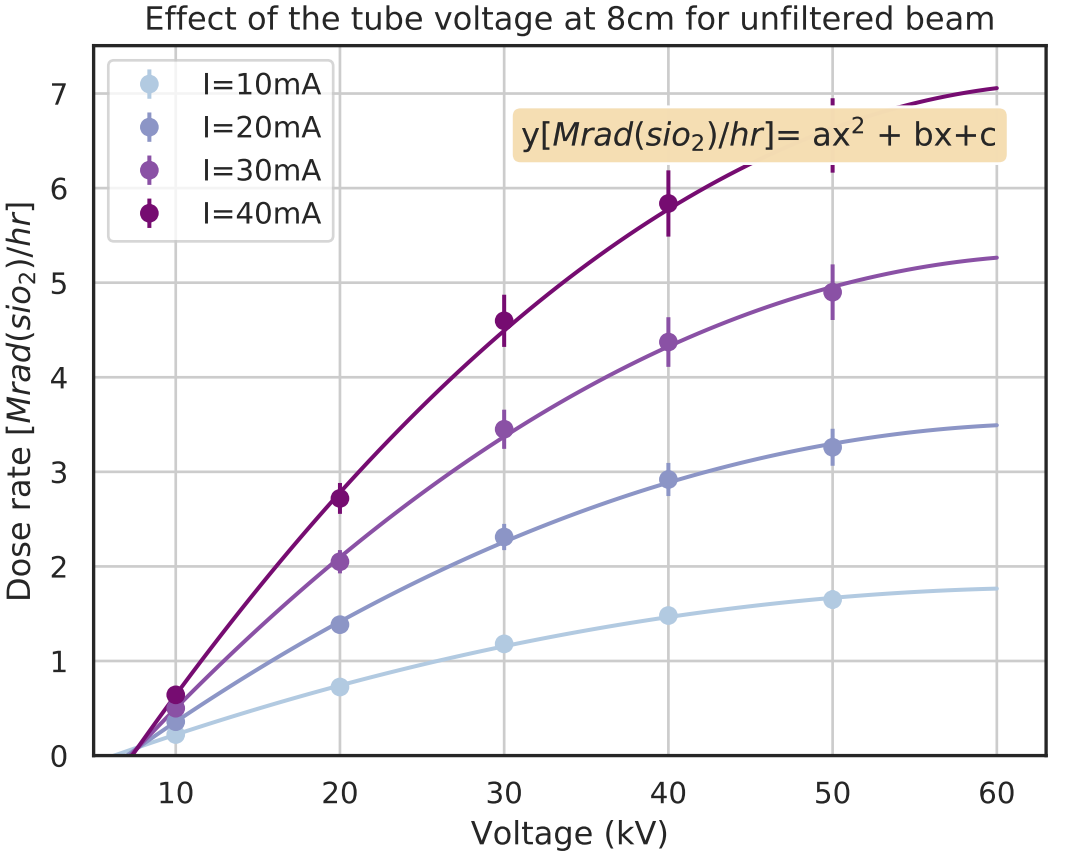

Diameter covered by beam spot without_Al_Filter
Θ^{rad} = 0.144± 0.004
h_0=6.268± 0.413
Height from the the collimator holder(h) [cm]
0
10
20
30
40
50
60
70
−4
−2
0
2
4
Diameter (d) [cm]

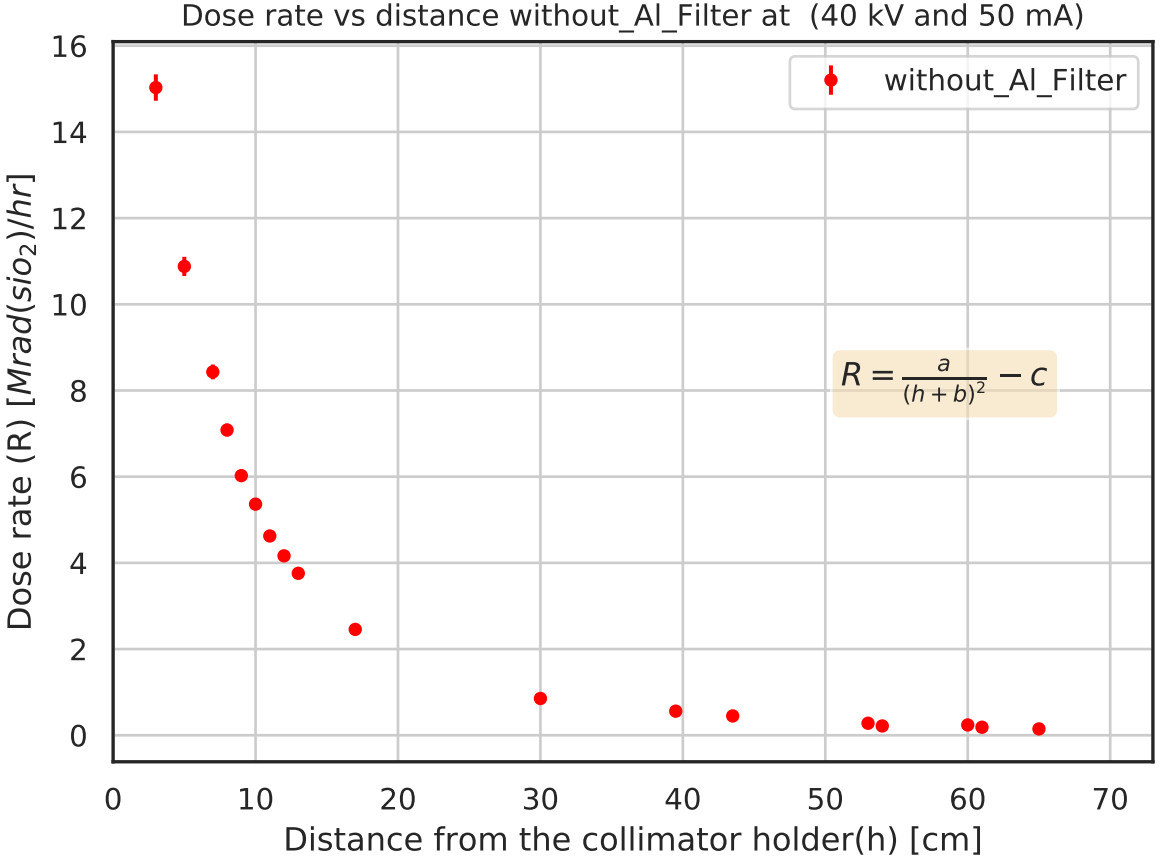

Dose rate vs distance with_Al_Filter at (40 kV and 50 mA)
with_Al_Filter
$R = \frac{a}{(h+b)^2} - c$
Dose rate (R) [$Mrad(sio_2)/hr$]
Distance from the collimator holder(h) [cm]
0
1
2
3
4
5
6
7
0
10
20
30
40
50
60

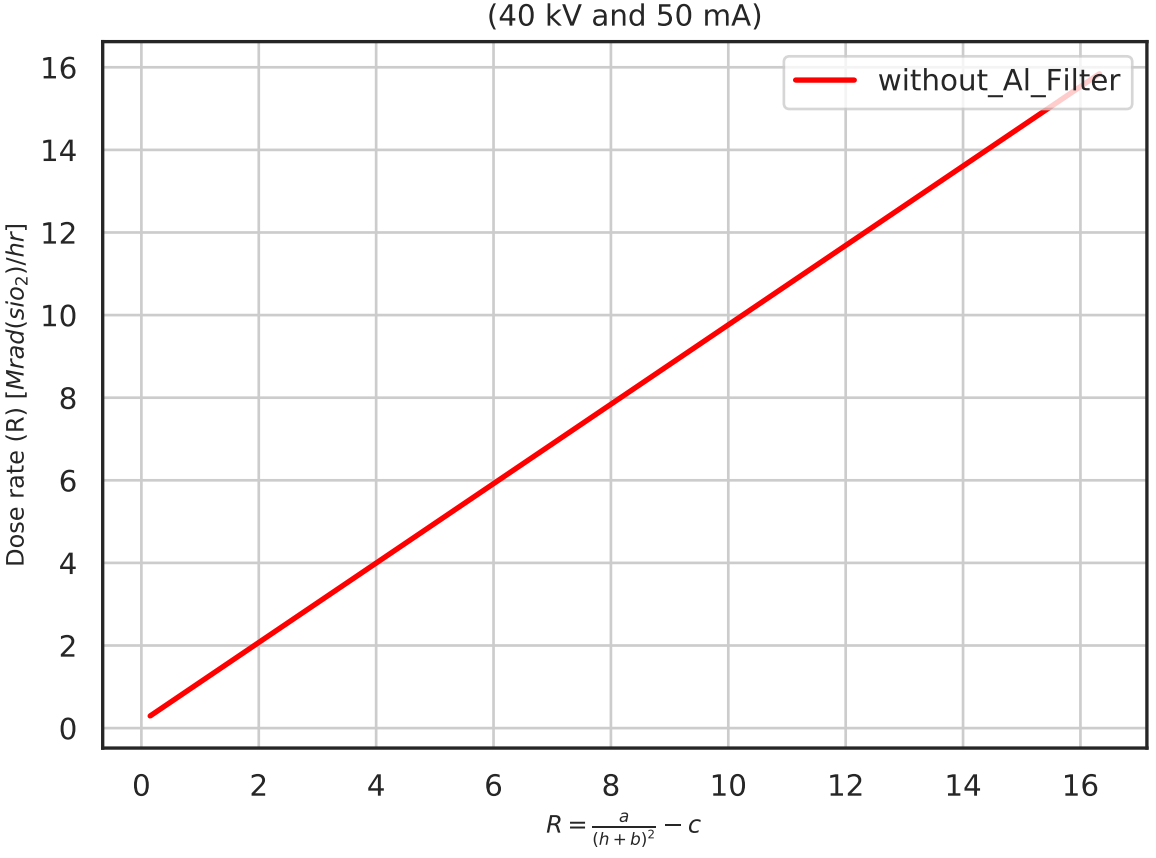

(40 kV and 50 mA)
with_Al_Filter
Dose rate (R) [$Mrad(sio_2)/hr$]
0
1
2
3
4
5
6
7
$R = \frac{a}{(h+b)^2} - c$

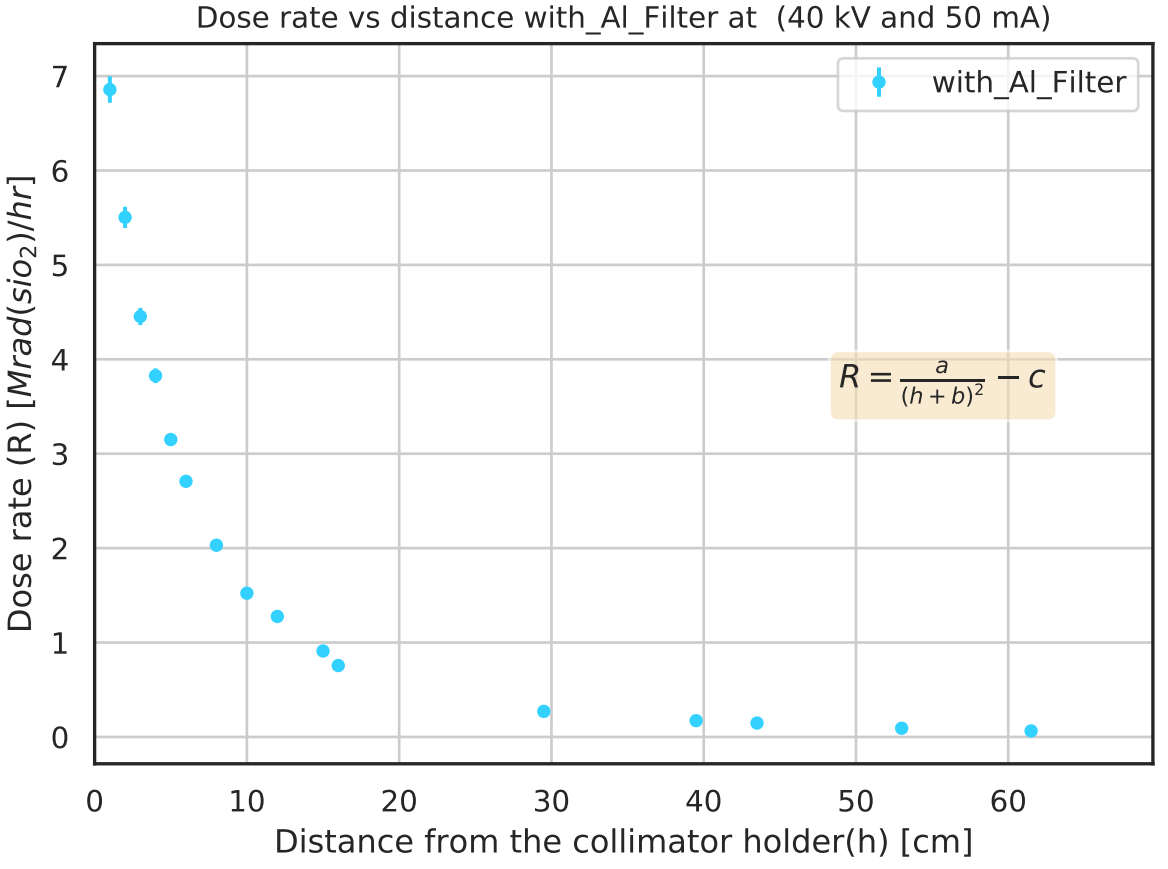

(40 kV and 50 mA)
with_Al_Filter
Dose rate (R) [$Mrad(sio_2)/hr$]
0
1
2
3
4
5
6
7
$R = \frac{a}{(h+b)^2} - c$

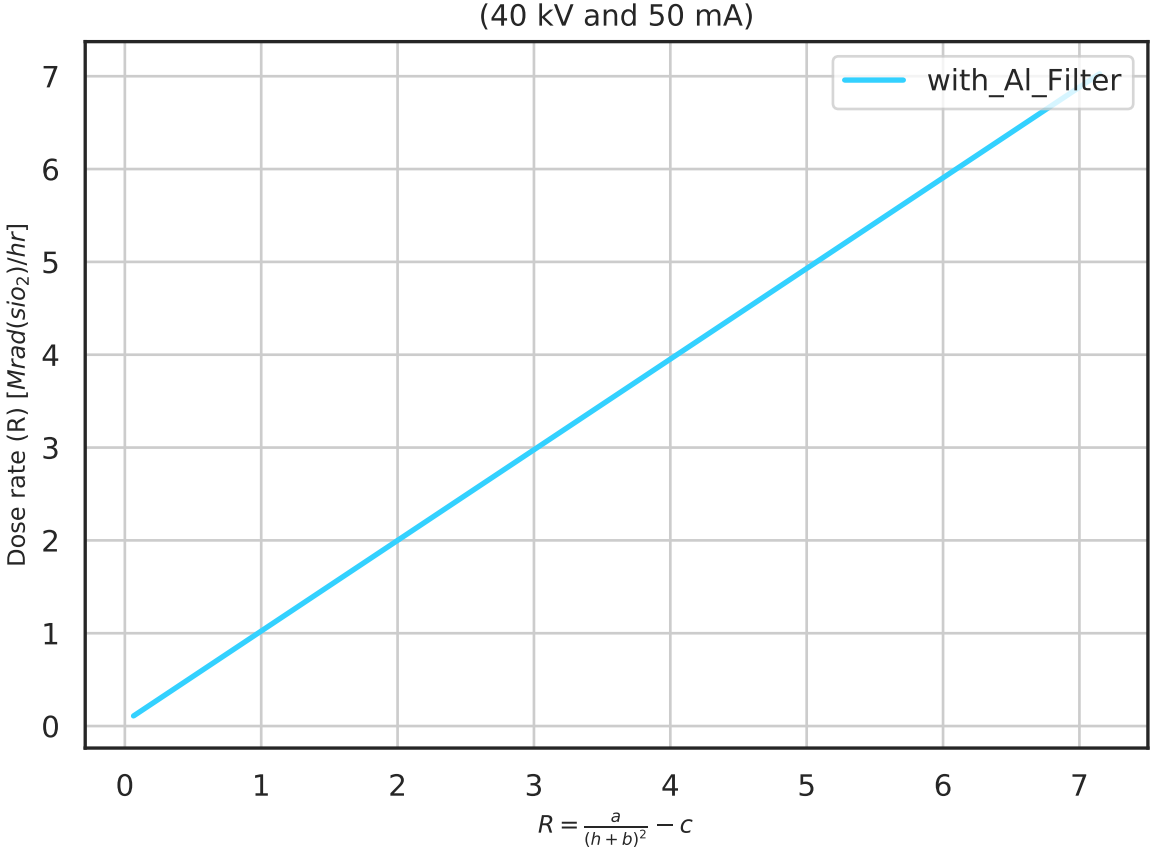

Diameter covered by beam spot with_Al_Filter
Θ^{rad} = 0.078± 0.003
h_0=6.206± 1.196
Height from the the collimator holder(h) [cm]
Diameter (d) [cm]
0
10
20
30
40
50
60
70
−3
−2
−1
0
1
2
3

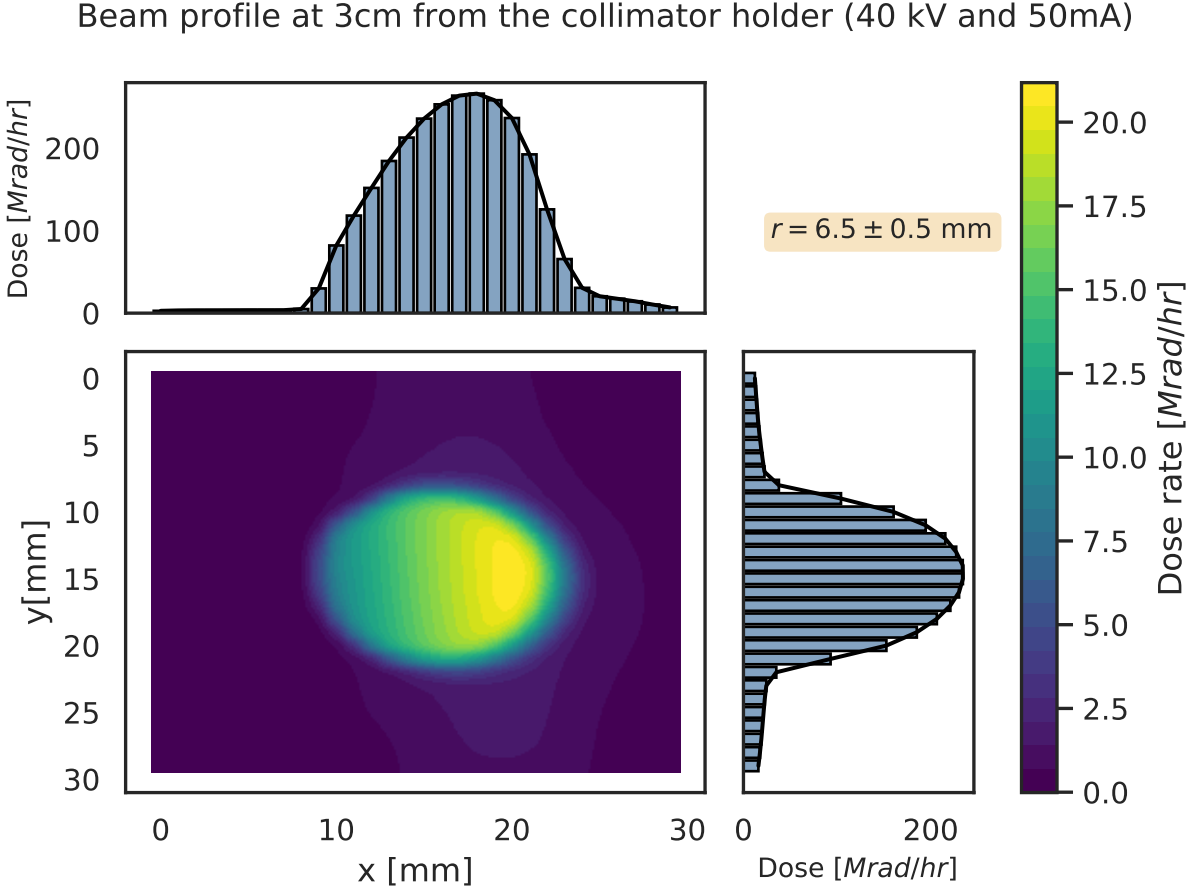

Effect of the tube voltage at 8cm for unfiltered beam
I=10mA
I=20mA
I=30mA
I=40mA
y[Mrad(sio2)/hr]= ax2 + bx+c
Dose rate [Mrad(sio2)/hr]
Voltage (kV)
0
1
2
3
4
5
6
7
10
20
30
40
50
60

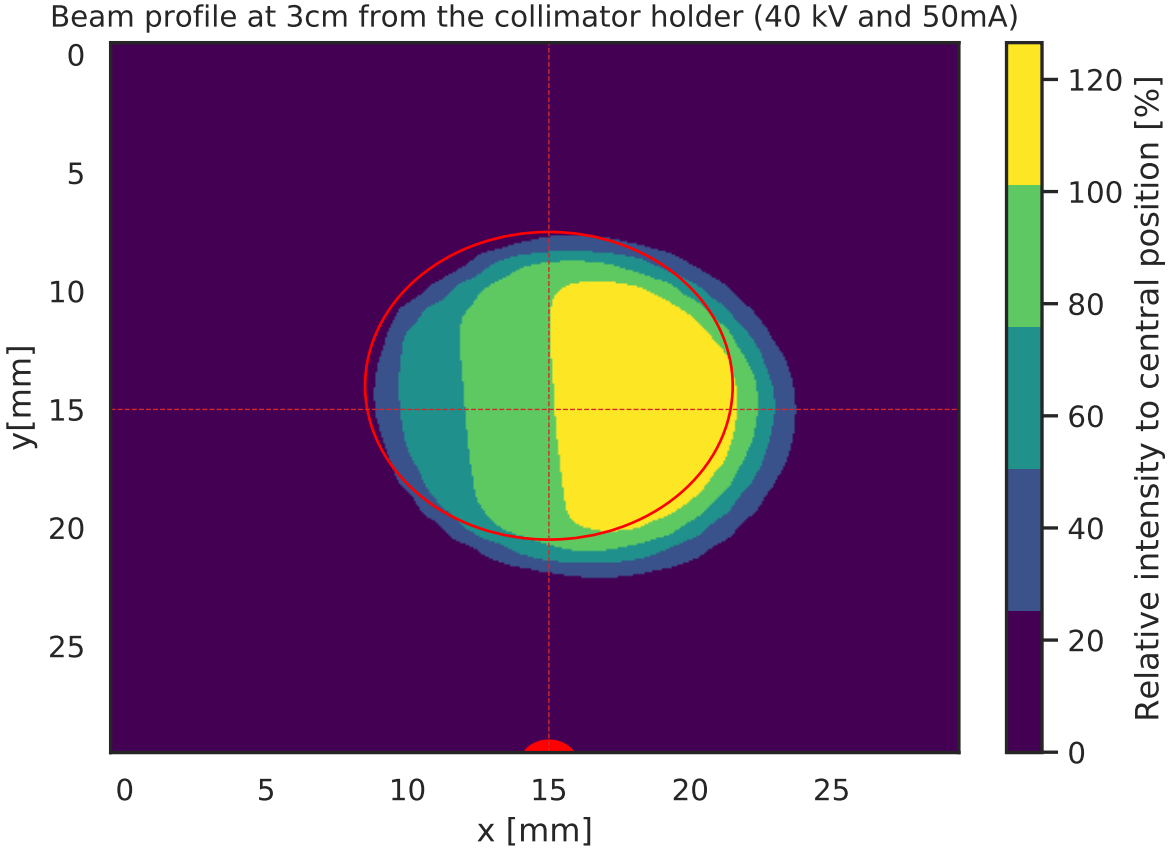

Dose rate vs distance without_Al_Filter at (40 kV and 50 mA)
without_Al_Filter
$R = \frac{a}{(h+b)^2} - c$
Dose rate (R) [$Mrad(sio_2)/hr$]
Distance from the collimator holder(h) [cm]
0
2
4
6
8
10
12
14
16
0
10
20
30
40
50
60
70


(40 kV and 50 mA)
without_Al_Filter
Dose rate (R) [$Mrad(sio_2)/hr$]
$R = \frac{a}{(h+b)^2} - c$
0
2
4
6
8
10
12
14
16

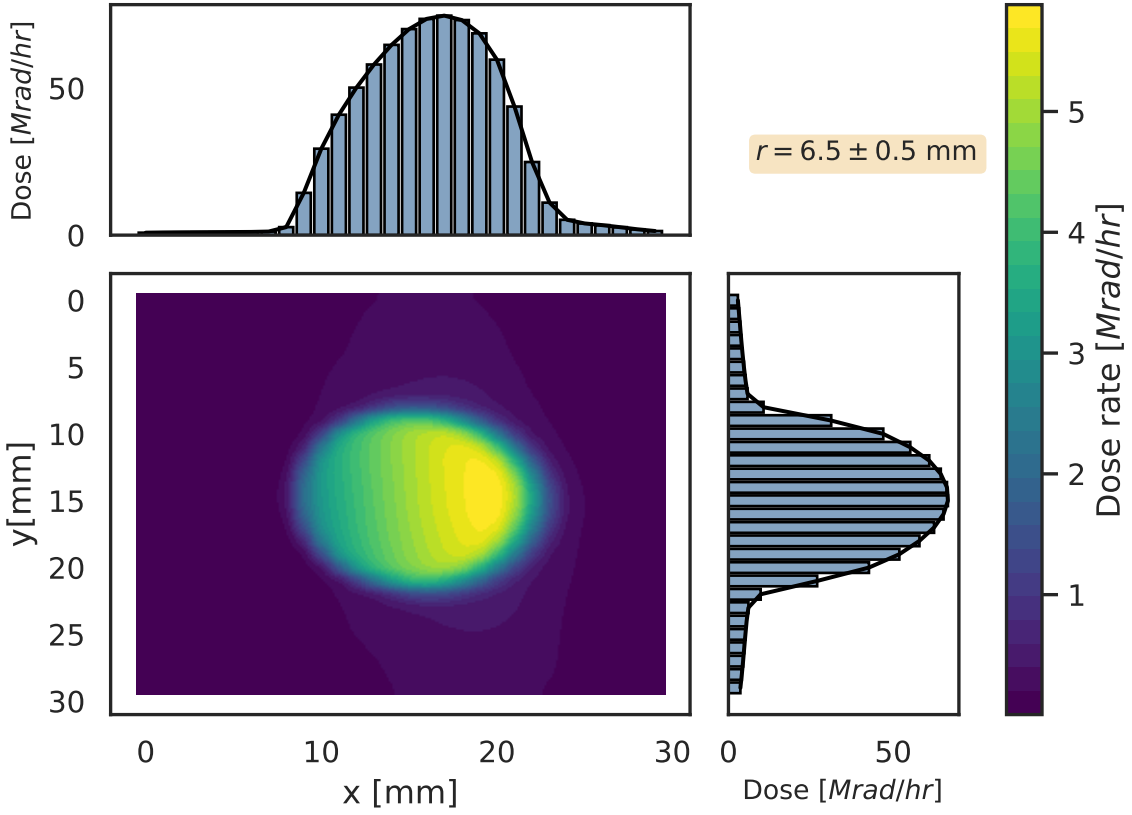

Dose rate vs distance with_Al_Filter at (40 kV and 50 mA)
with_Al_Filter
$R = \frac{a}{(h+b)^2} - c$
Dose rate (R) [$Mrad(sio_2)/hr$]
Distance from the collimator holder(h) [cm]
0
1
2
3
4
5
6
7
0
10
20
30
40
50
60

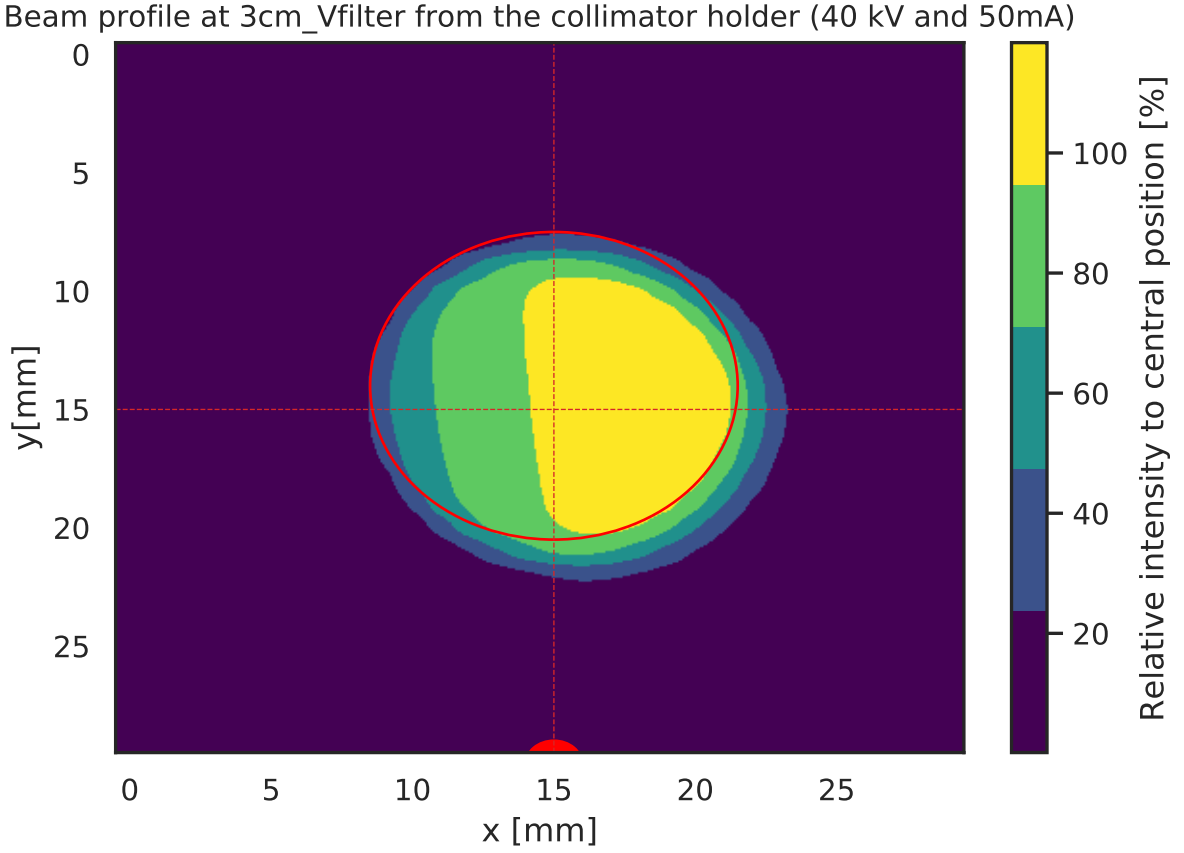

(40 kV and 50 mA)
with_Al_Filter
Dose rate (R) [$Mrad(sio_2)/hr$]
0
1
2
3
4
5
6
7
$R = \frac{a}{(h+b)^2} - c$

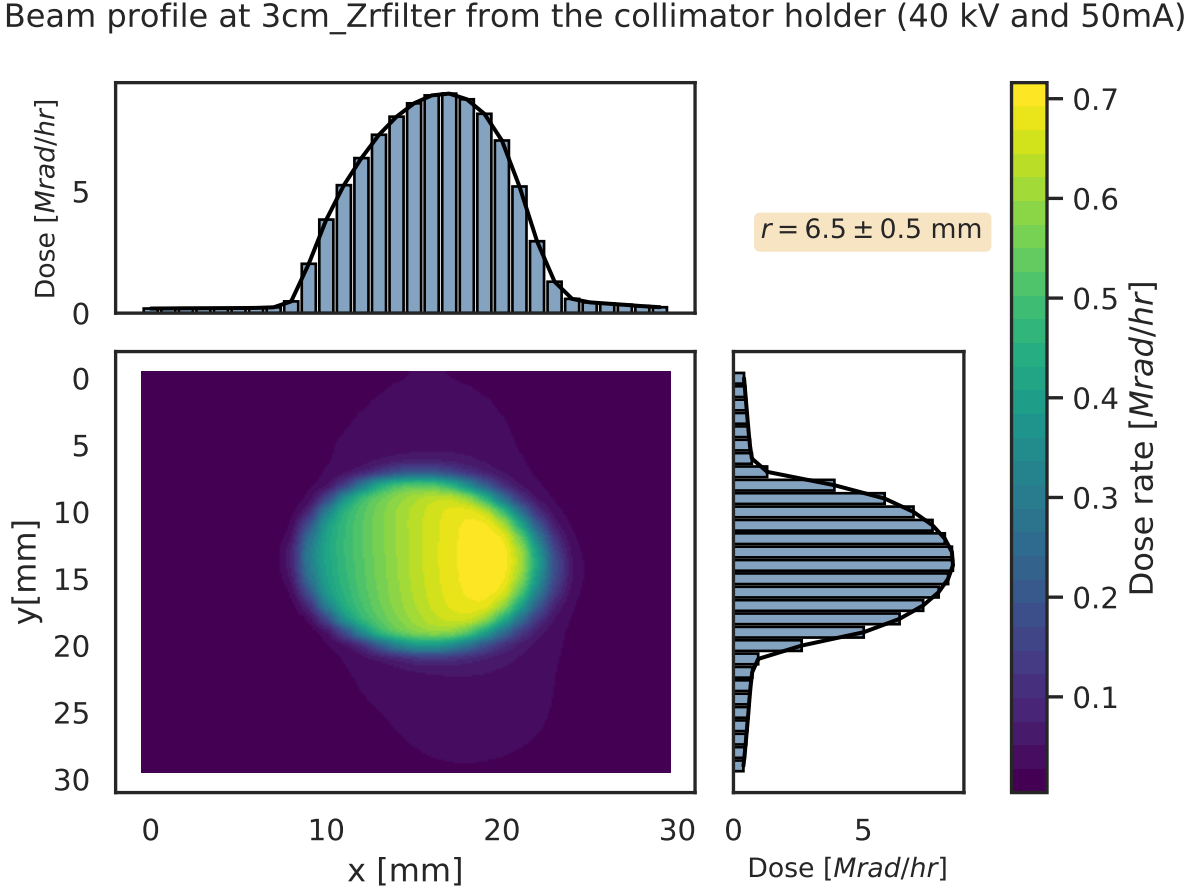

Beam profile at 3cm from the collimator holder (40 kV and 50mA)
Dose [Mrad/hr]
200
100
0
$r = 6.5 \pm 0.5$ mm
y[mm]
0
5
10
15
20
25
30
0
10
20
30
x [mm]
0
200
Dose [Mrad/hr]
20.0
17.5
15.0
12.5
10.0
7.5
5.0
2.5
0.0
Dose rate [Mrad/hr]

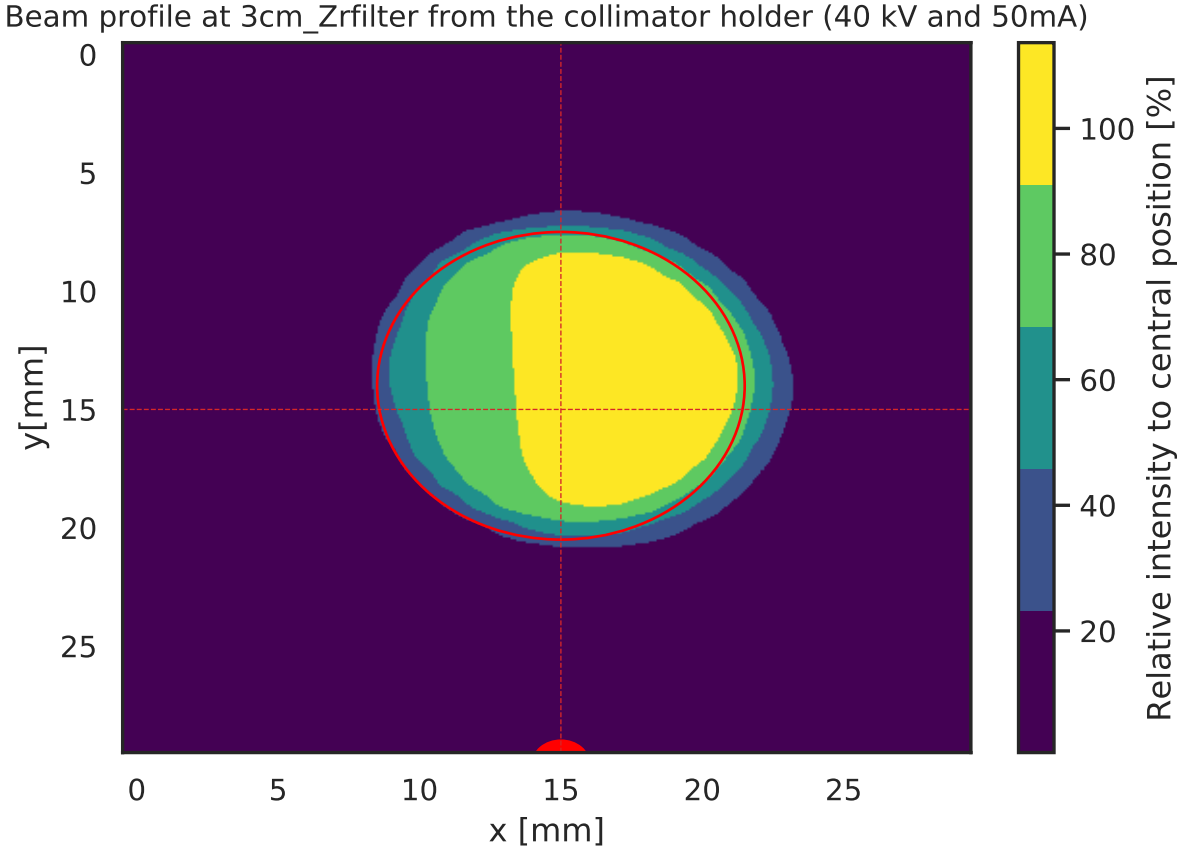

Beam profile at 3cm from the collimator holder (40 kV and 50mA)
y[mm]
x [mm]
Relative intensity to central position [%]
0
5
10
15
20
25
0
20
40
60
80
100
120

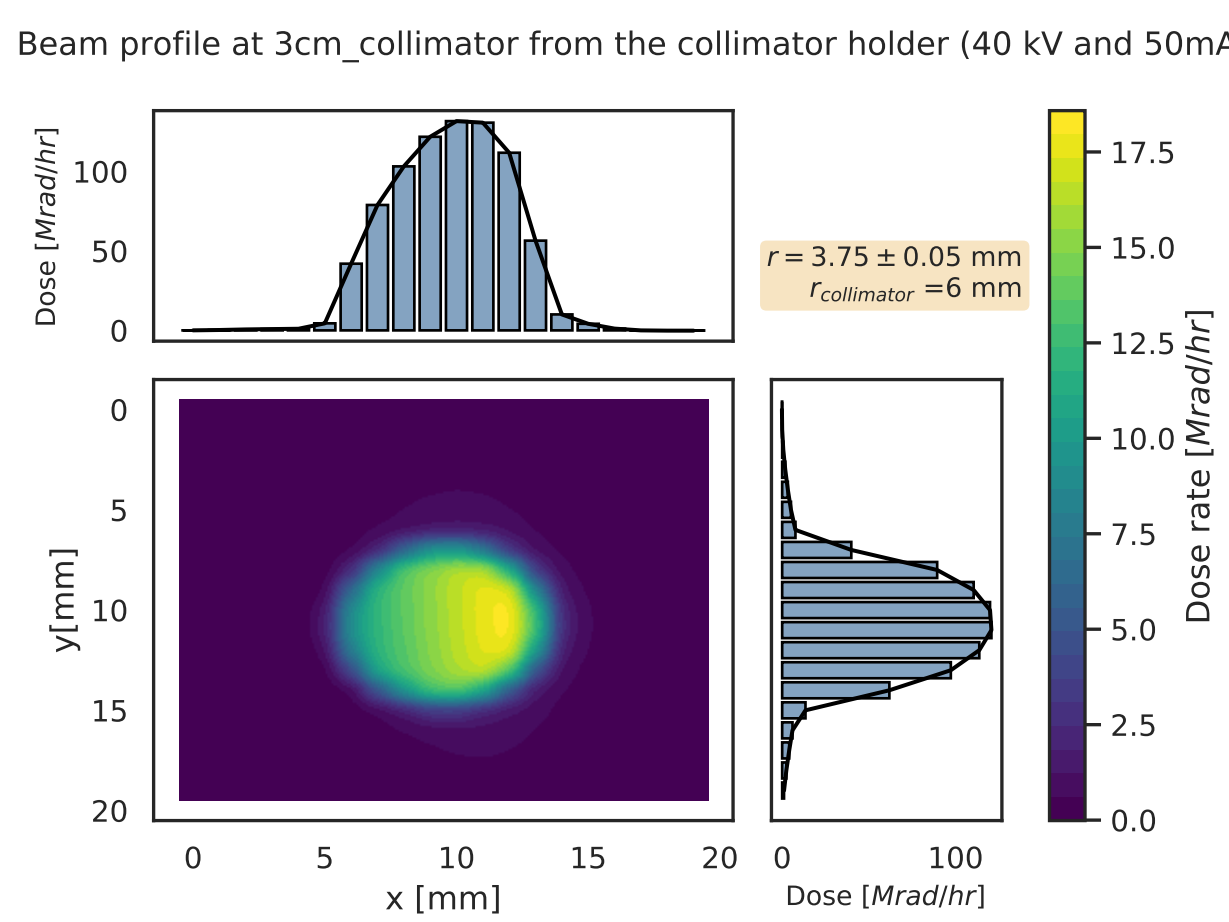
Beam profile at 3cm_Vfilter from the collimator holder (40 kV and 50mA)

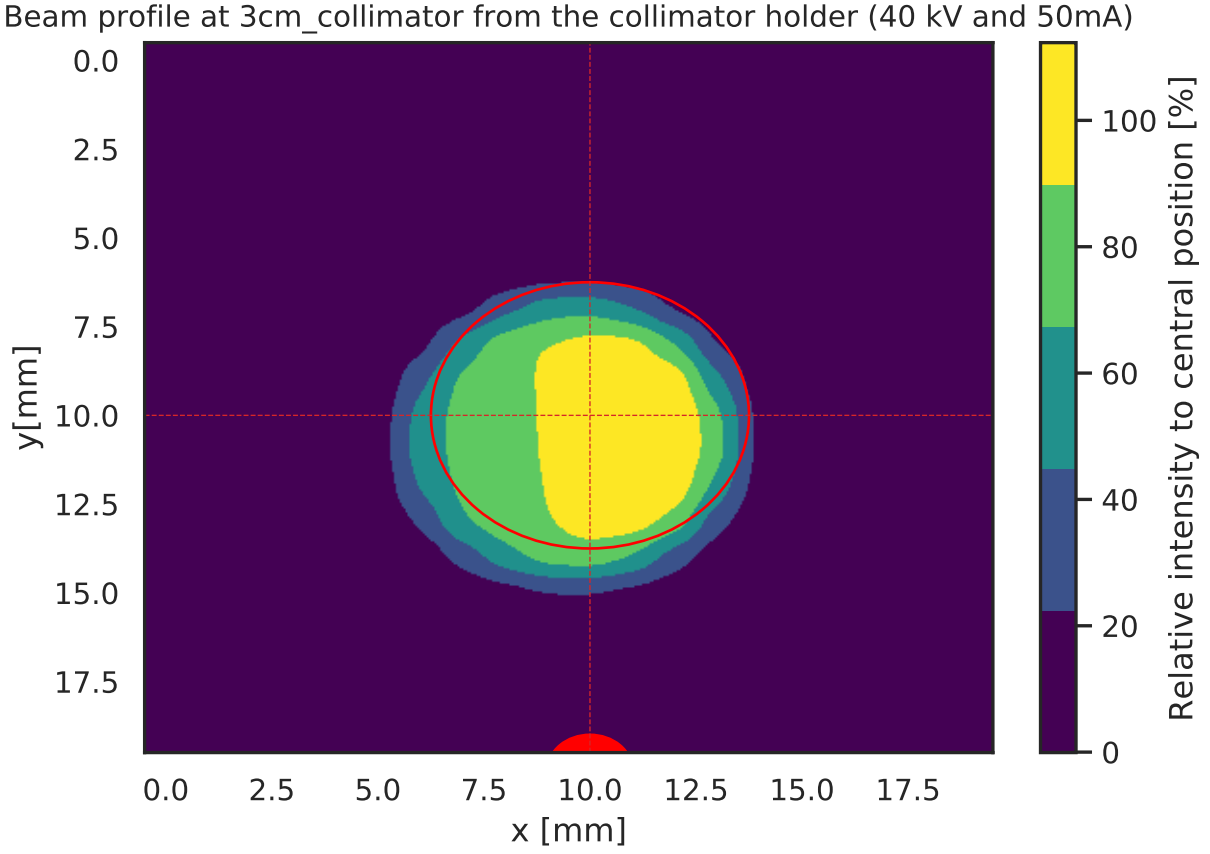


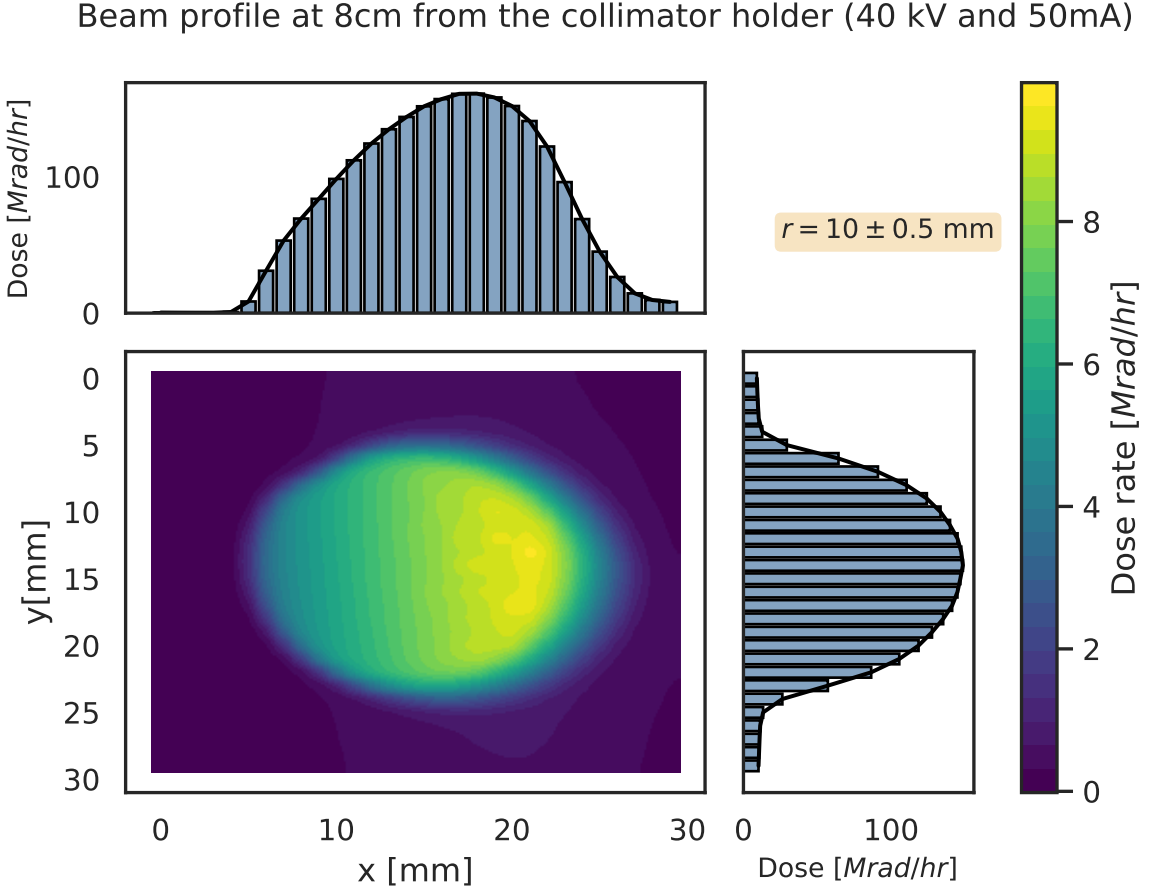

Beam profile at 3cm_Vfilter from the collimator holder (40 kV and 50mA)
y[mm]
x [mm]
Relative intensity to central position [%]
0
5
10
15
20
25
100
80
60
40
20

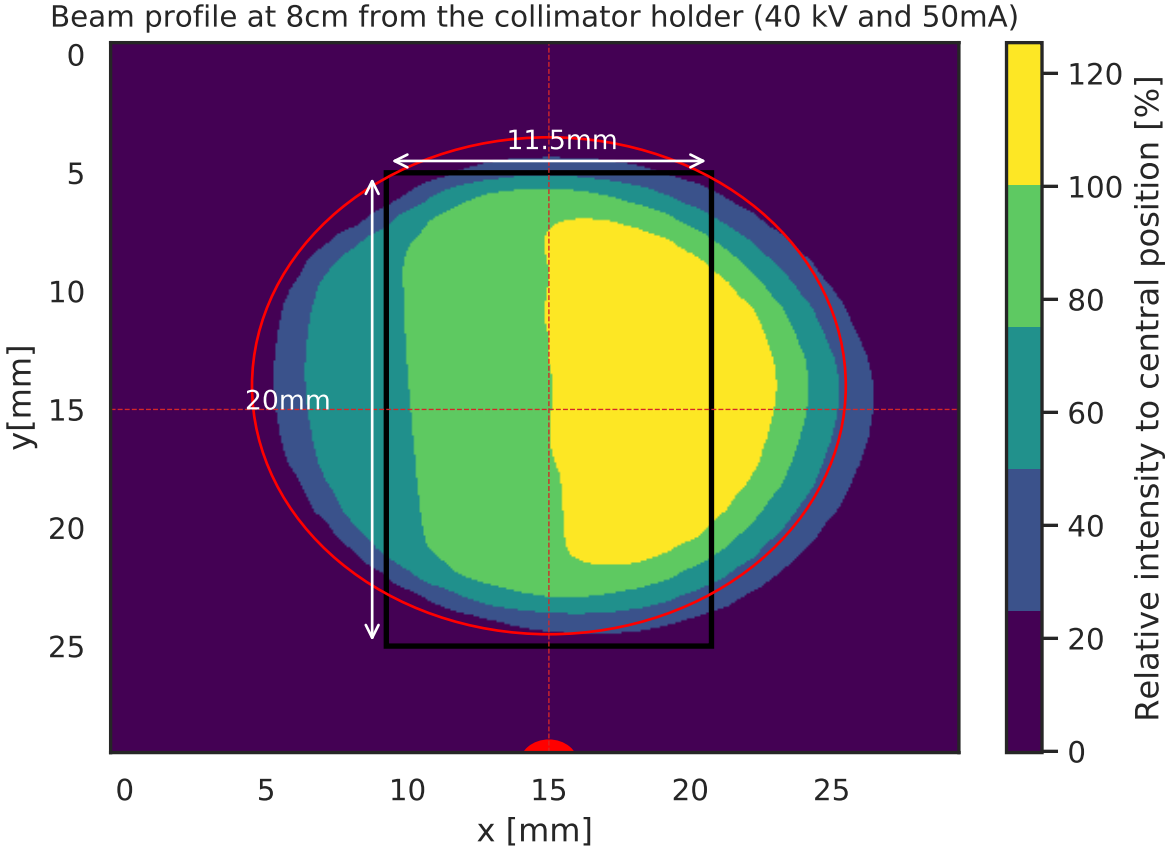

Beam profile at 3cm_Zrfilter from the collimator holder (40 kV and 50mA)
Dose [Mrad/hr]
0
5
$r = 6.5 \pm 0.5$ mm
0.7
0.6
0.5
0.4
0.3
0.2
0.1
Dose rate [Mrad/hr]
y[mm]
0
5
10
15
20
25
30
0
10
20
30
x [mm]
0
5
Dose [Mrad/hr]

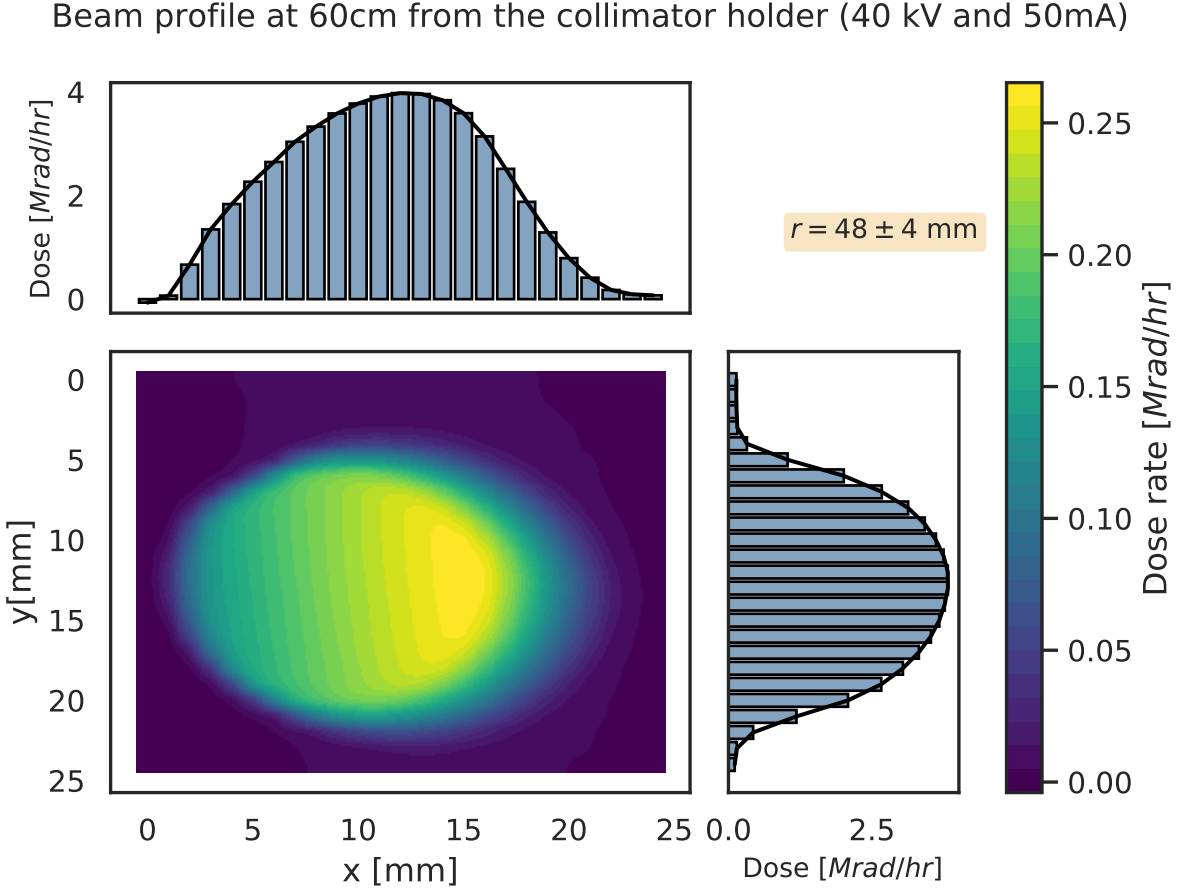

Beam profile at 3cm_Zrfilter from the collimator holder (40 kV and 50mA)
y[mm]
x [mm]
Relative intensity to central position [%]
0
5
10
15
20
25
100
80
60
40
20

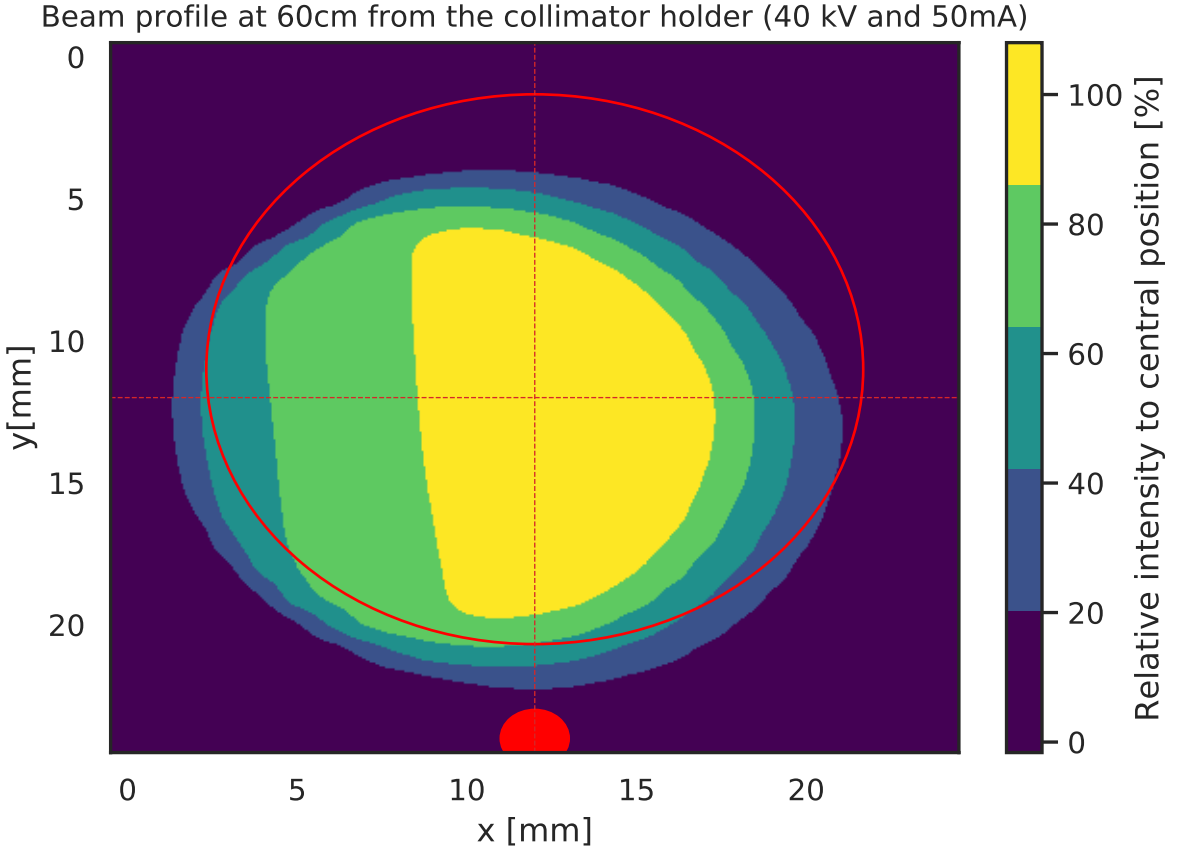

Beam profile at 3cm_collimator from the collimator holder (40 kV and 50mA
Dose [Mrad/hr]
100
50
0
$r = 3.75 \pm 0.05$ mm
$r_{collimator}$ =6 mm
17.5
15.0
12.5
10.0
7.5
5.0
2.5
0.0
Dose rate [Mrad/hr]
y[mm]
0
5
10
15
20
0
5
10
15
20
x [mm]
0
100
Dose [Mrad/hr]


Beam profile at 3cm_collimator from the collimator holder (40 kV and 50mA)
y[mm]
0.0
2.5
5.0
7.5
10.0
12.5
15.0
17.5
x [mm]
0.0
2.5
5.0
7.5
10.0
12.5
15.0
17.5
Relative intensity to central position [%]
0
20
40
60
80
100


Beam profile at 8cm from the collimator holder (40 kV and 50mA)
Dose [Mrad/hr]
100
0
r = 10 ± 0.5 mm
y[mm]
0
5
10
15
20
25
30
0
10
20
30
x [mm]
0
100
Dose [Mrad/hr]
Dose rate [Mrad/hr]
8
6
4
2
0


Beam profile at 8cm from the collimator holder (40 kV and 50mA)
11.5mm
20mm
y[mm]
x [mm]
Relative intensity to central position [%]
0
5
10
15
20
25
120
100
80
60
40
20
0


Beam profile at 60cm from the collimator holder (40 kV and 50mA)
Dose [Mrad/hr]
4
2
0
r = 48 ± 4 mm
y[mm]
0
5
10
15
20
25
x [mm]
0
5
10
15
20
25
0.0
2.5
Dose [Mrad/hr]
Dose rate [Mrad/hr]
0.25
0.20
0.15
0.10
0.05
0.00


Beam profile at 60cm from the collimator holder (40 kV and 50mA)
y[mm]
0
5
10
15
20
x [mm]
0
5
10
15
20
Relative intensity to central position [%]
100
80
60
40
20
0