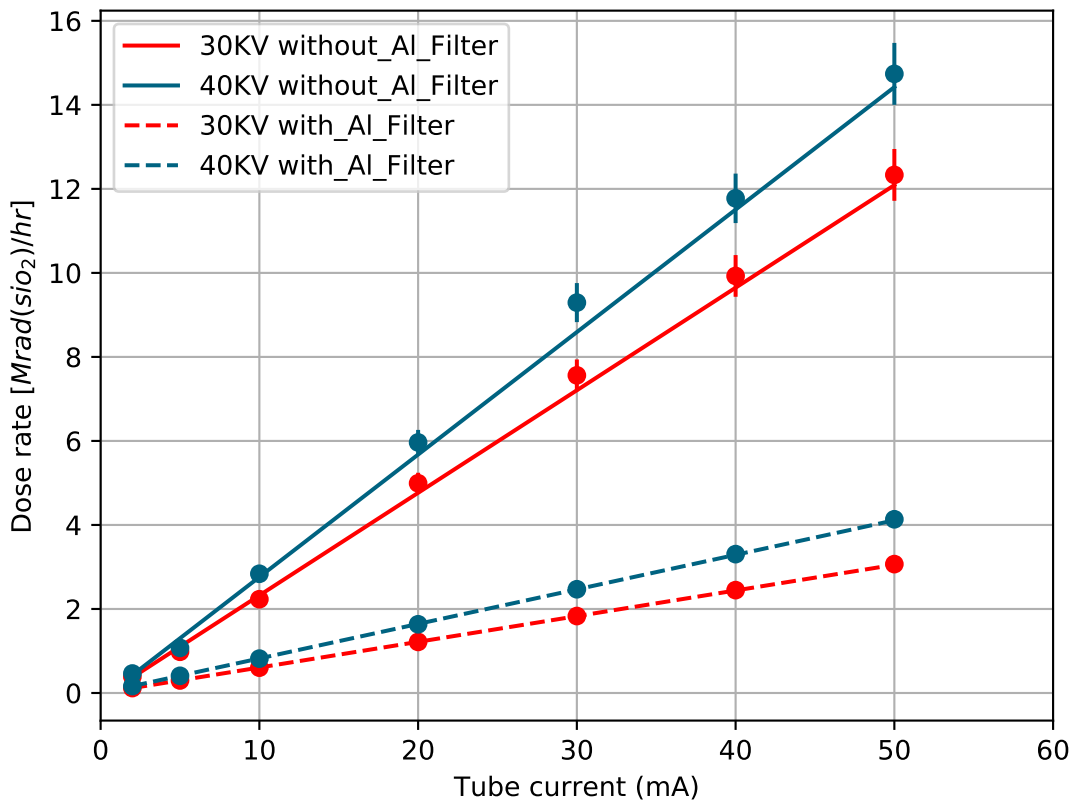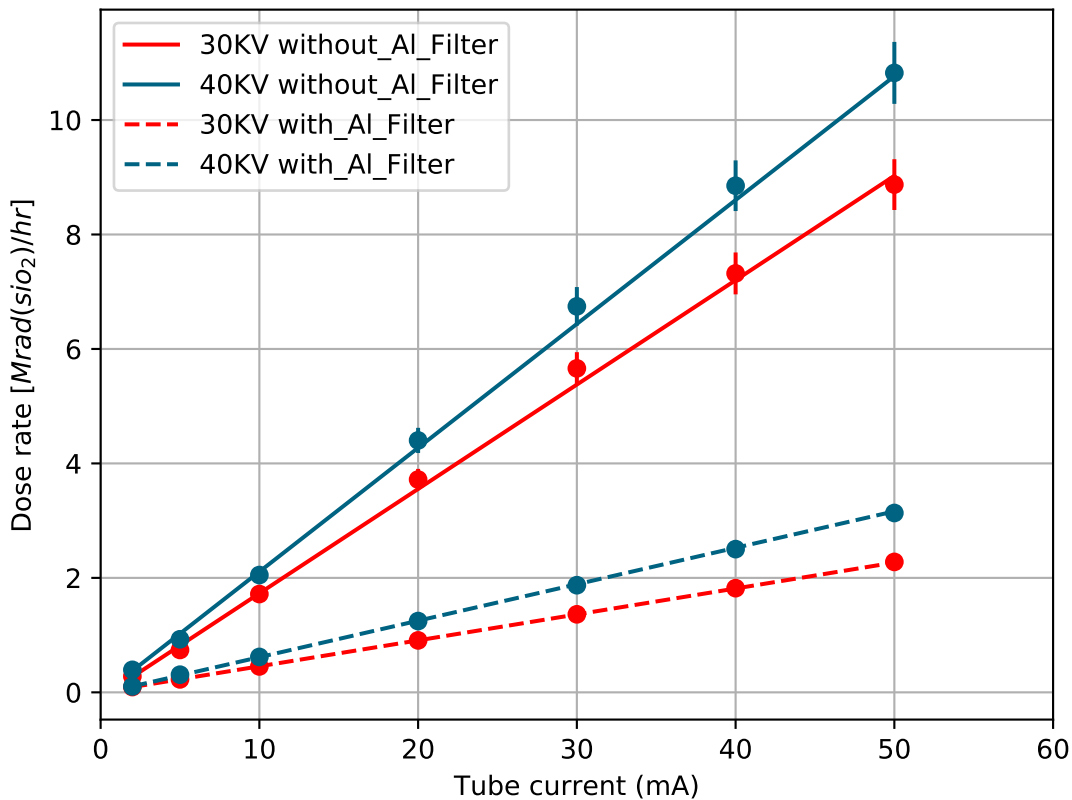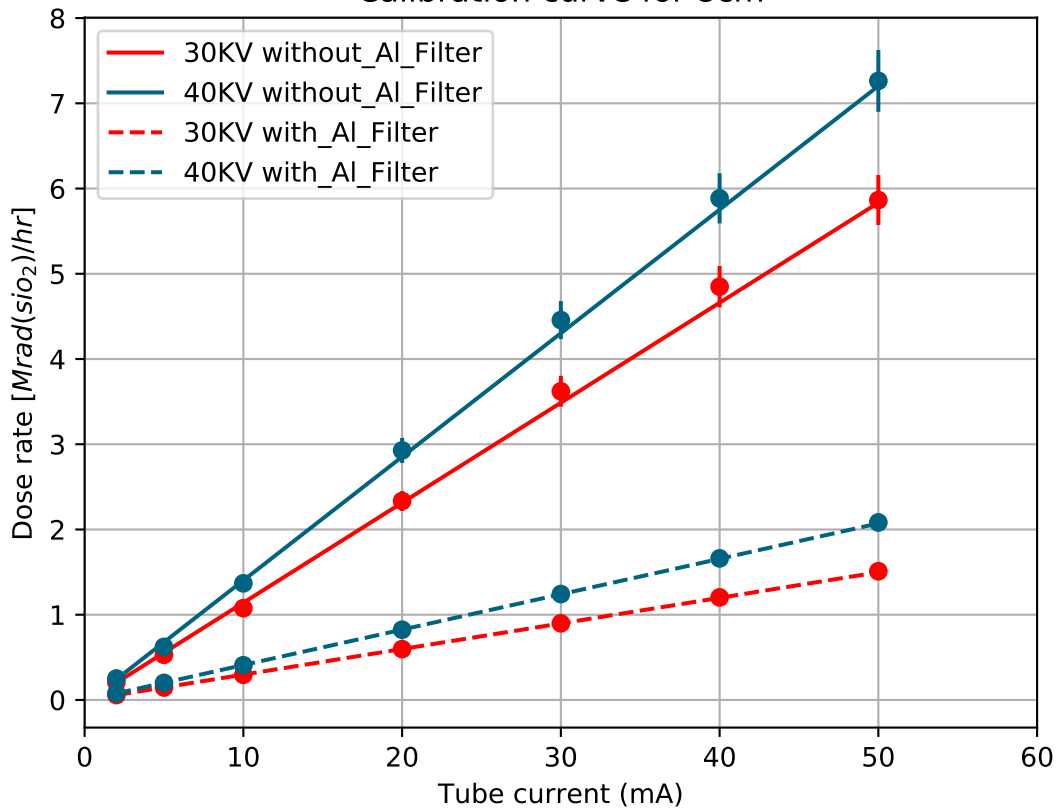Calibration curve for 3cm
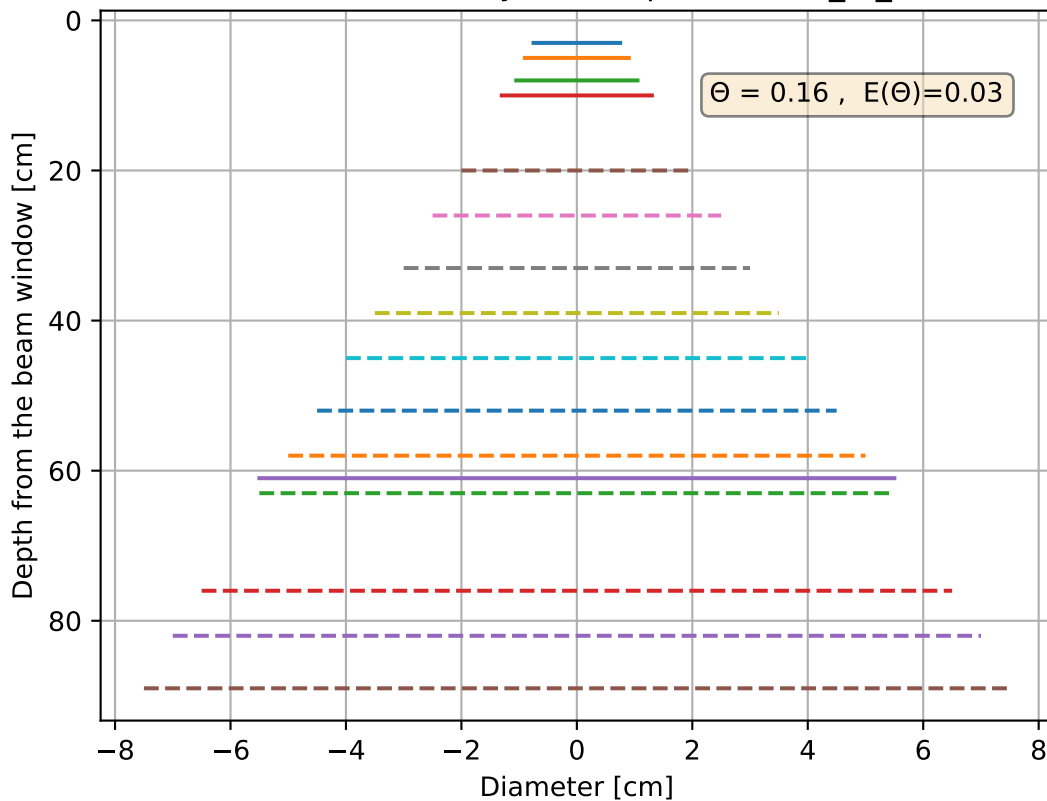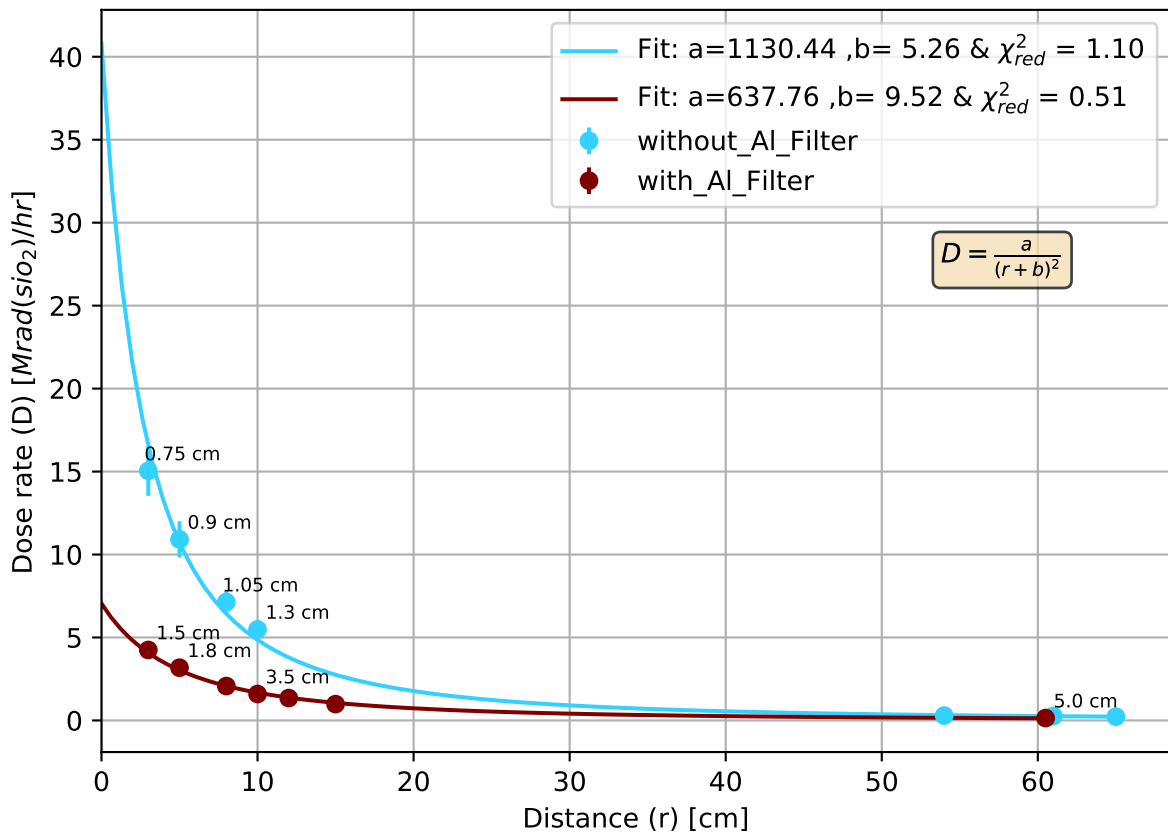
Calibration curve for 5cm

Calibration curve for 8cm

Diameter covered by beam spot without_Al_Filter

Θ = 0.16 , E(Θ)=0.03

Dose rate vs Distance at (40 kV and 50 mA)

Fit: a=1130.44 ,b= 5.26 & χ^2_{red} = 1.10
Fit: a=637.76 ,b= 9.52 & χ^2_{red} = 0.51
without_Al_Filter
with_Al_Filter

$$D = \frac{a}{(r+b)^2}$$

Dose rate (D) [$Mrad(sio_2)/hr$]

Distance (r) [cm]

0.75 cm
0.9 cm
1.05 cm
1.3 cm
1.5 cm
1.8 cm
3.5 cm
5.0 cm

Effect of tube Voltage at 8cm without_Al_Filter

- I=10mA, χ^2 =1.098085
- I=20mA, χ^2 =1.191594
- I=30mA, χ^2 =1.171110
- I=40mA, χ^2 =1.146494

$D(V)=a*log(V + b)-c$

Dose rate $[Mrad(sio_2)/hr]$

Voltage (kV)

Legend:
- $f(x; a, b, c) = a\,x^2 + b\,x + c$ (red solid line)
- $f(x; a, b, c) = a\,x^2 + b\,x + c$ (blue dashed line)
- I=30mA (red circle)
- I=40mA (blue triangle)
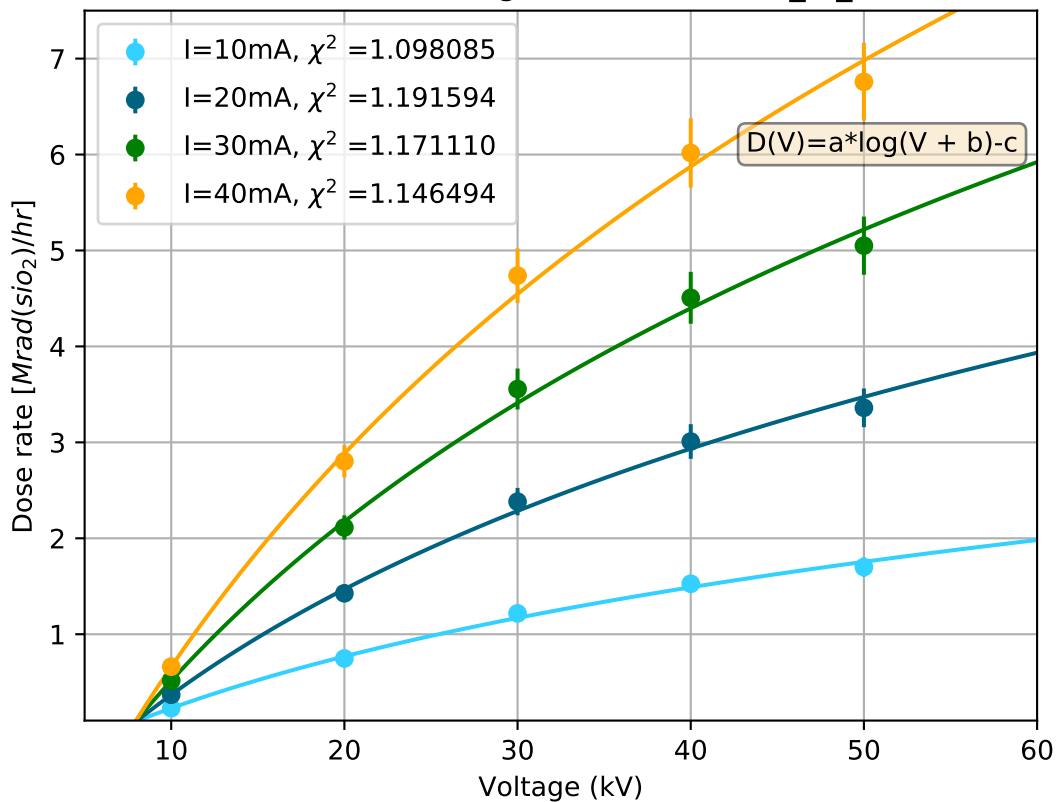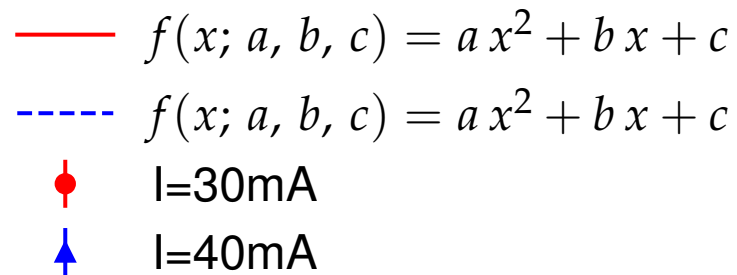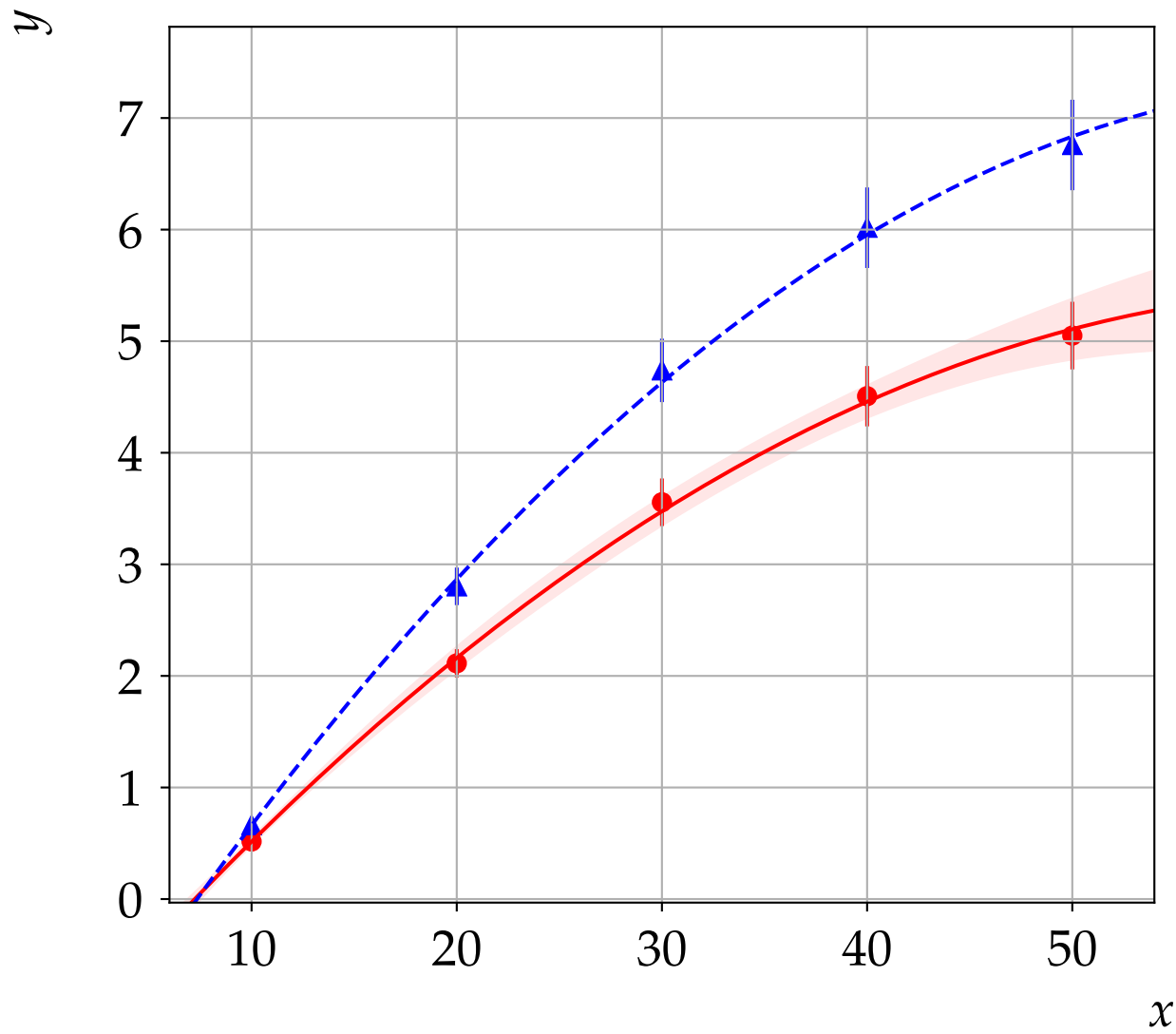
Fit Info

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$f(x; a, b, c) = a\,x^2 + b\,x + c$:
$a = -0.00166 \pm 0.00045$
$b = 0.214 \pm 0.023$
$c = -1.46 \pm 0.19$

—

$f(x; a, b, c) = a\,x^2 + b\,x + c$:
$a = -0.00221 \pm 0.0006$
$b = 0.287 \pm 0.03$
$c = -1.99 \pm 0.26$