Kinematics Report

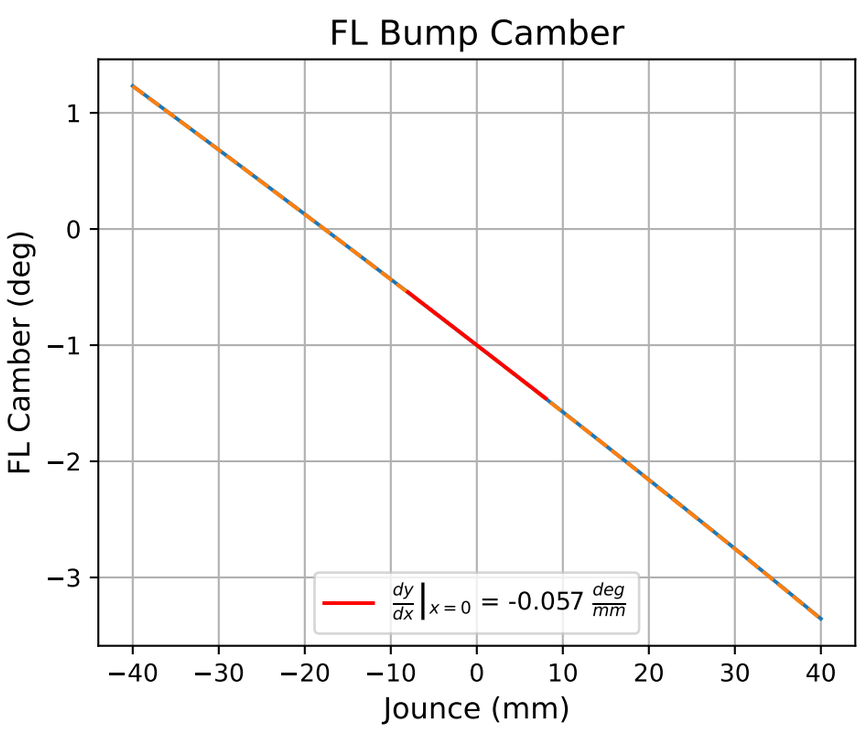
Simulation Author: Robert Horvath

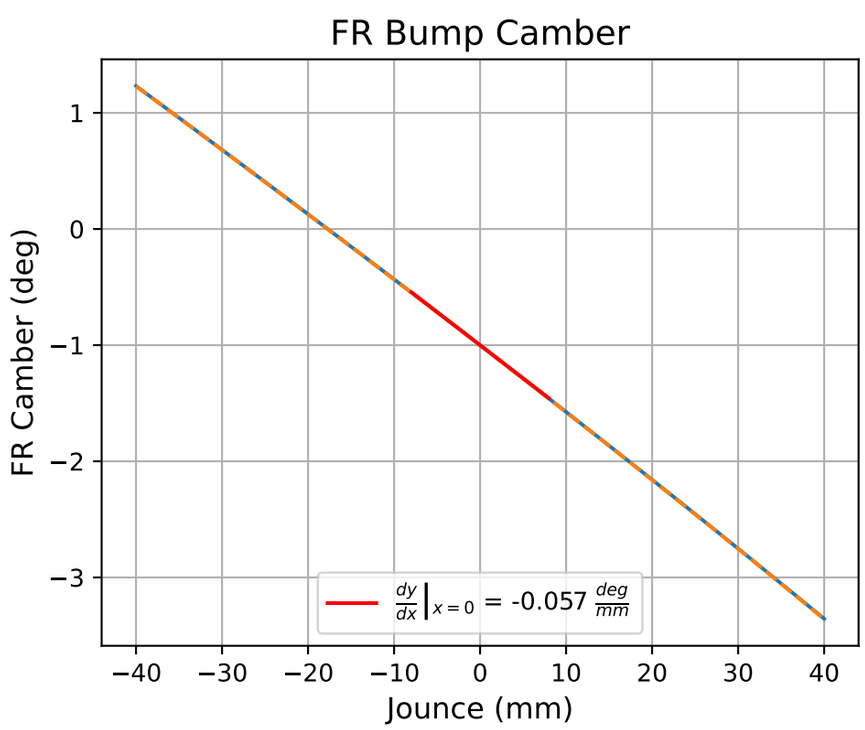
Generated By: Unknown (Unknown)

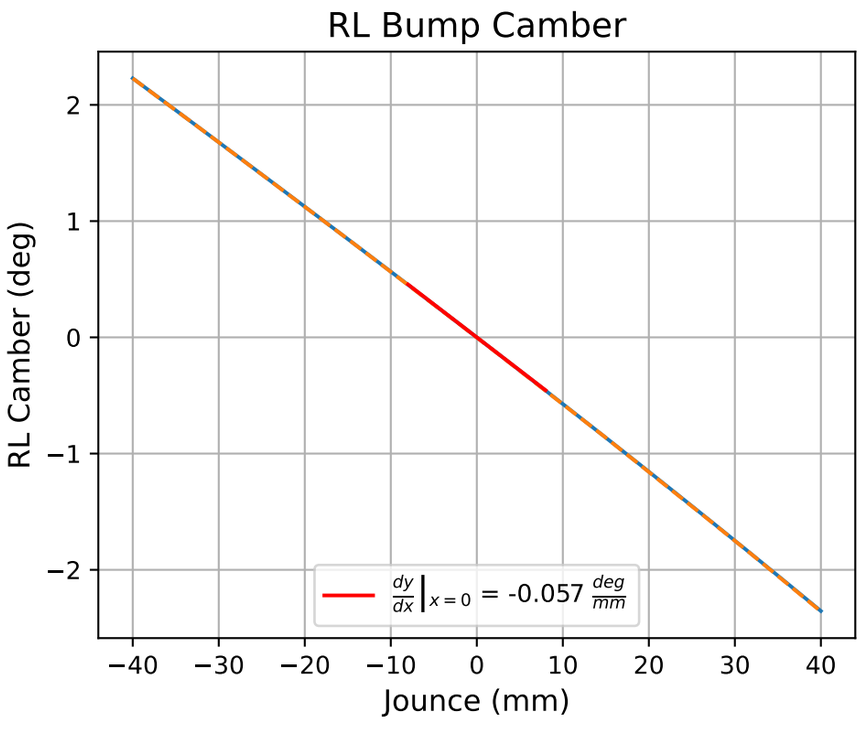
Date: 2025-08-20, 01:31 AM UTC

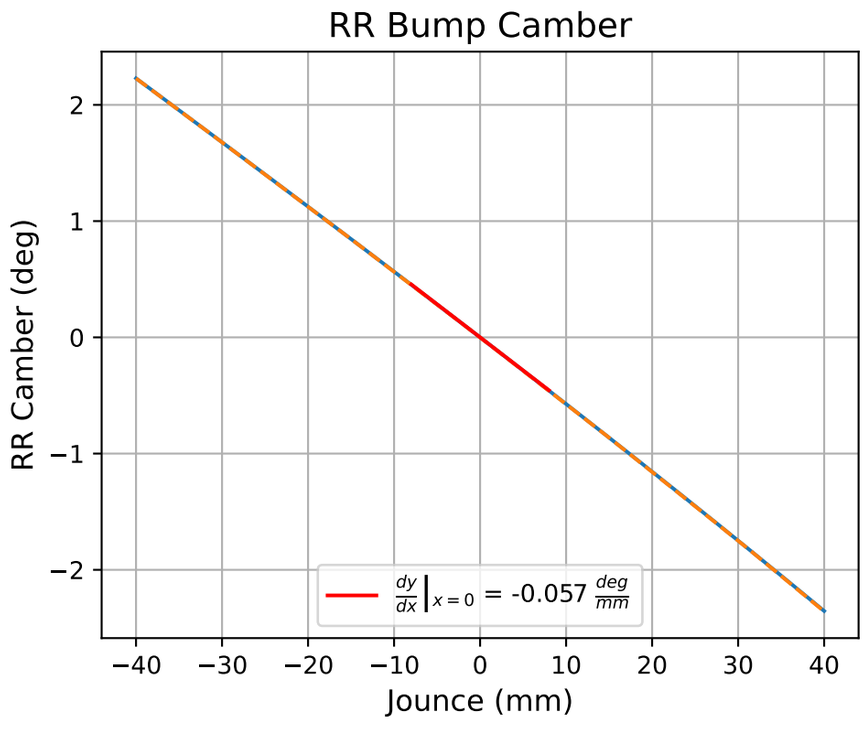
Note 1: Linear fits are tangent lines about x = 0 (NOT fits over the entire range)

Note 2: Cubic fits are performed over the entire visible domain (fits over the entire range)







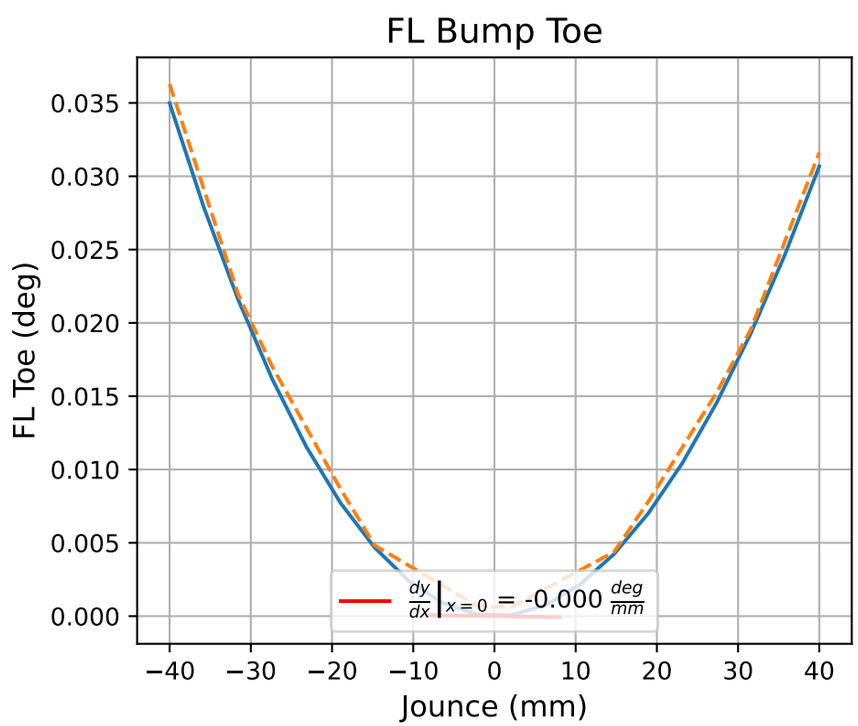


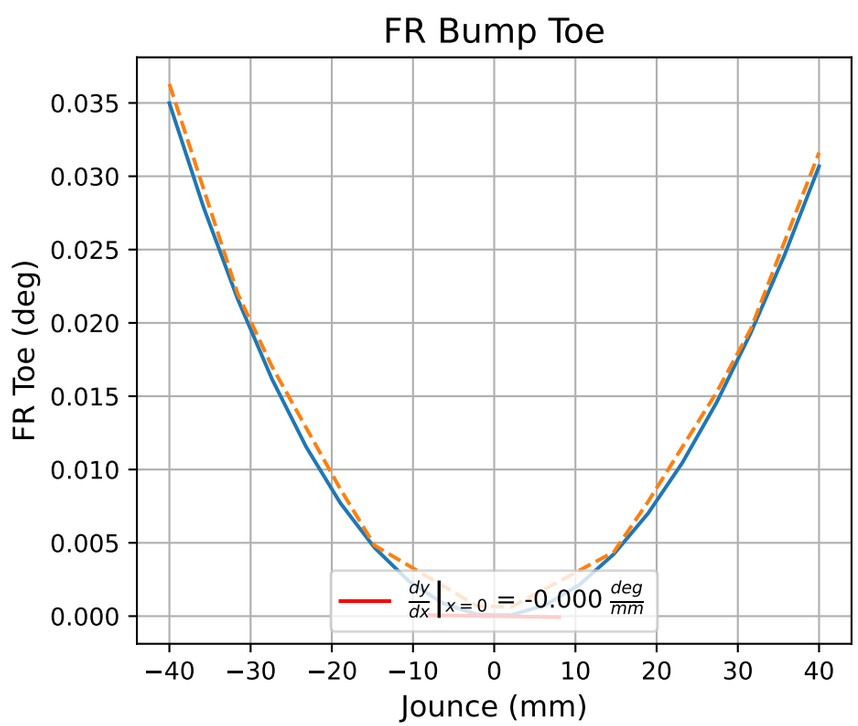
Linear Fit $f(x) = a_1x + a_0$

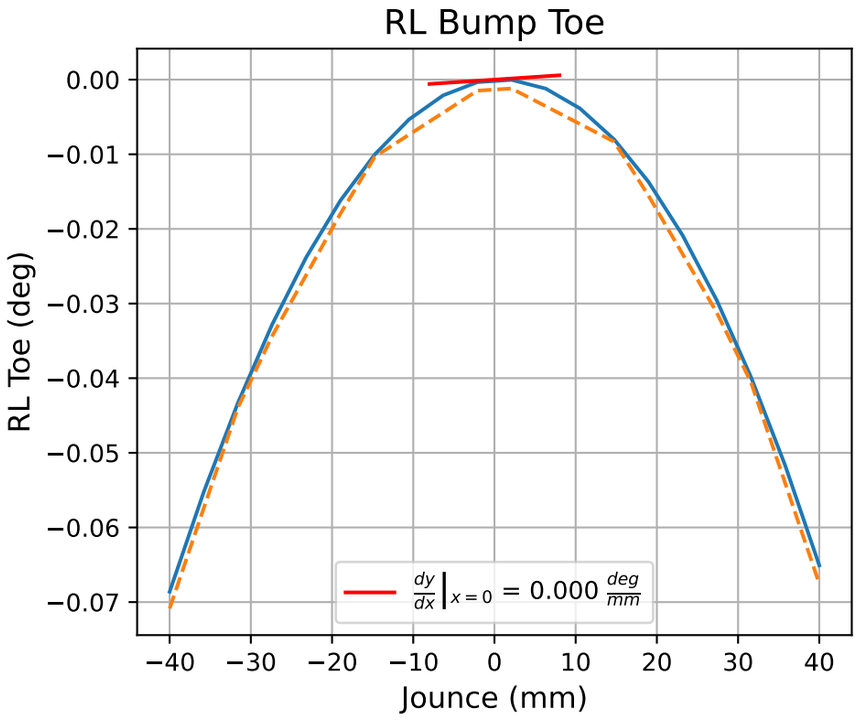
FL	$f(x) = -0.057x + -1.0$
FR	$f(x) = -0.057x + -1.0$
RL	$f(x) = -0.057x + 0.0$
RR	$f(x) = -0.057x + 0.0$

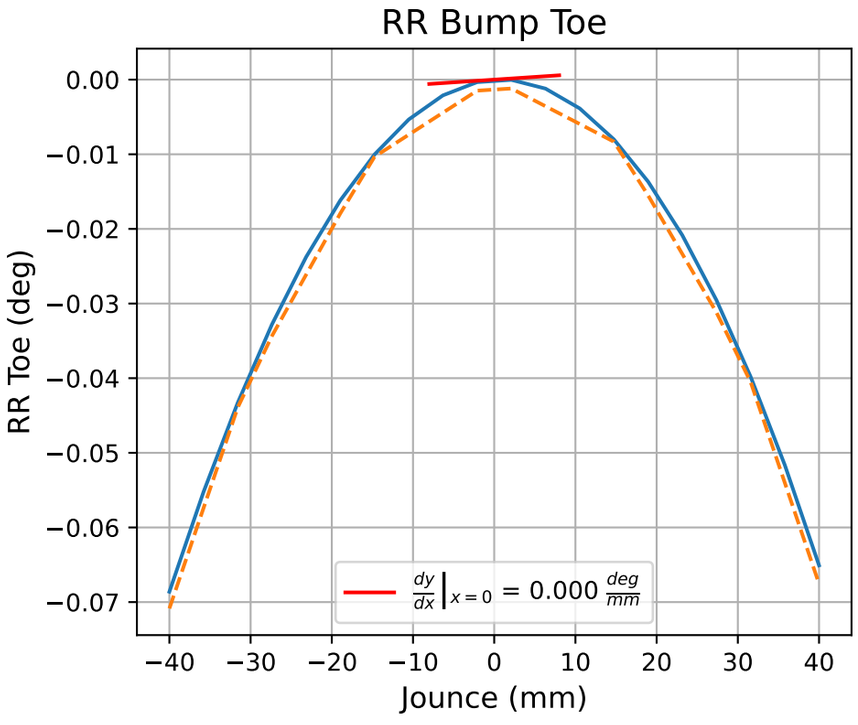
Cubic Fit $f(x) = a_3x^3 + a_2x^2 + a_1x + a_0$

FL	$f(x) = -0.0x^3 + -0.0x^2 + -0.057x + -1.0$
FR	$f(x) = -0.0x^3 + -0.0x^2 + -0.057x + -1.0$
RL	$f(x) = -0.0x^3 + -0.0x^2 + -0.057x + 0.0$
RR	$f(x) = -0.0x^3 + -0.0x^2 + -0.057x + 0.0$







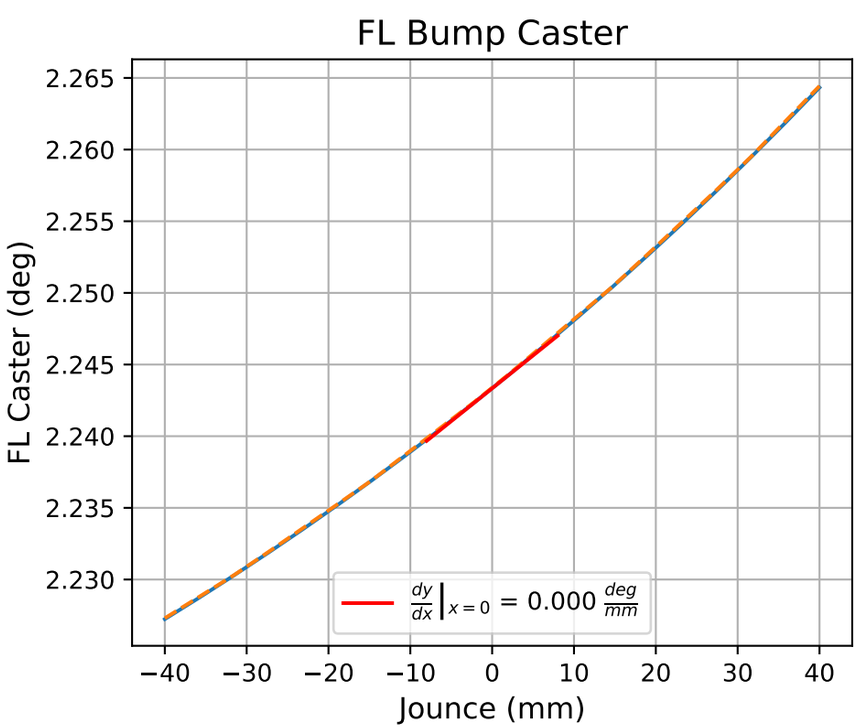


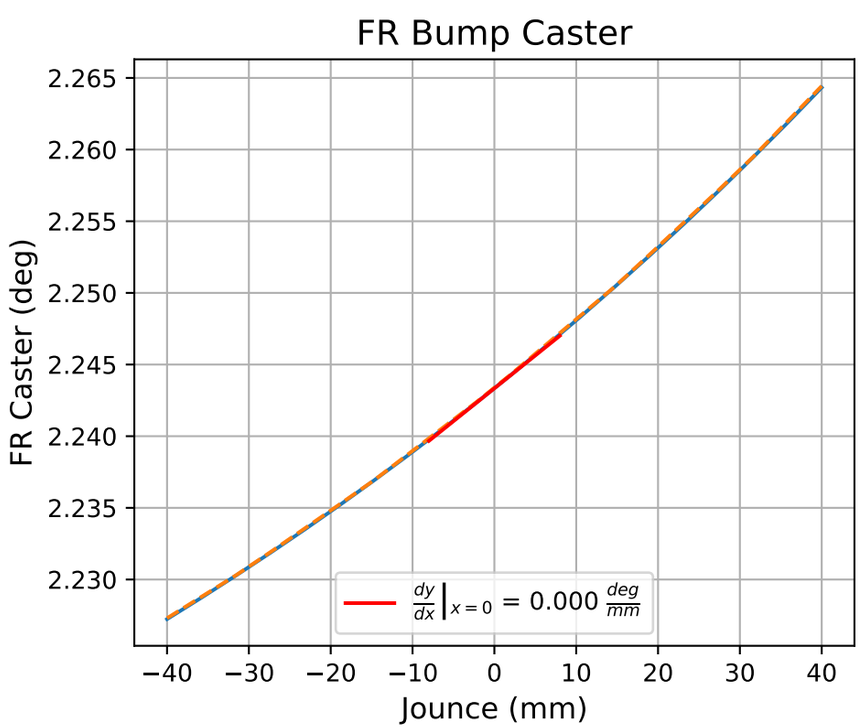
Linear Fit $f(x) = a_1x + a_0$

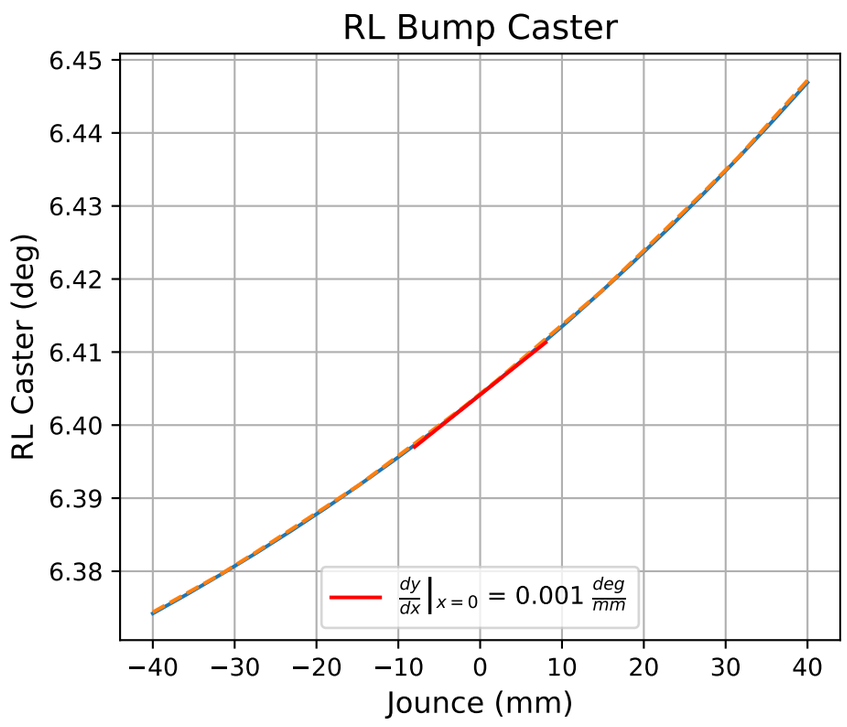
FL	$f(x) = -0.0x + -0.0$
FR	$f(x) = -0.0x + -0.0$
RL	$f(x) = 0.0x + 0.0$
RR	$f(x) = 0.0x + 0.0$

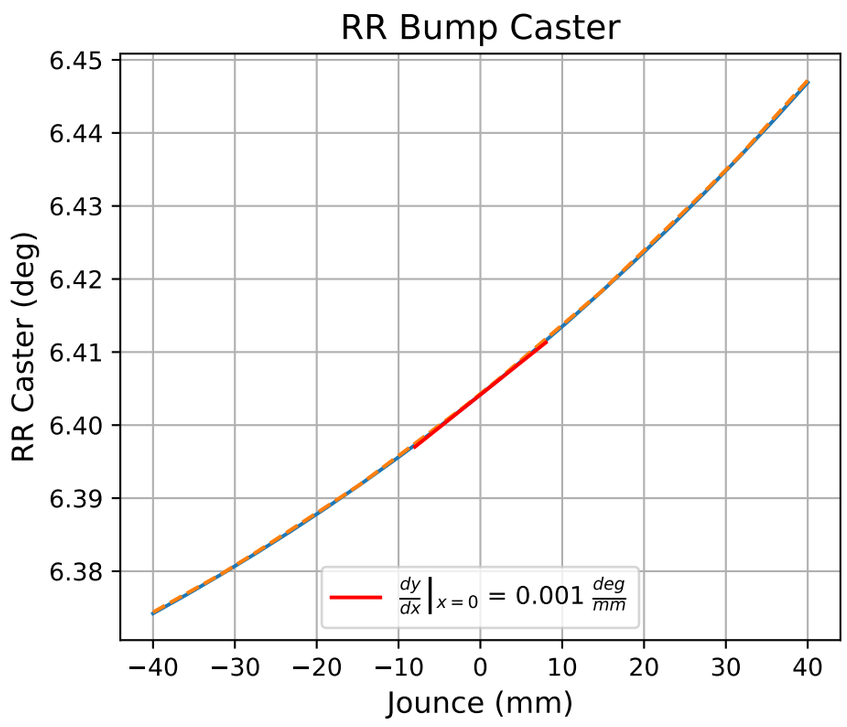
Cubic Fit $f(x) = a_3x^3 + a_2x^2 + a_1x + a_0$

FL	$f(x) = -0.0x^3 + 0.0x^2 + -0.0x + -0.0$
FR	$f(x) = -0.0x^3 + 0.0x^2 + -0.0x + -0.0$
RL	$f(x) = -0.0x^3 + -0.0x^2 + 0.0x + 0.0$
RR	$f(x) = -0.0x^3 + -0.0x^2 + 0.0x + 0.0$







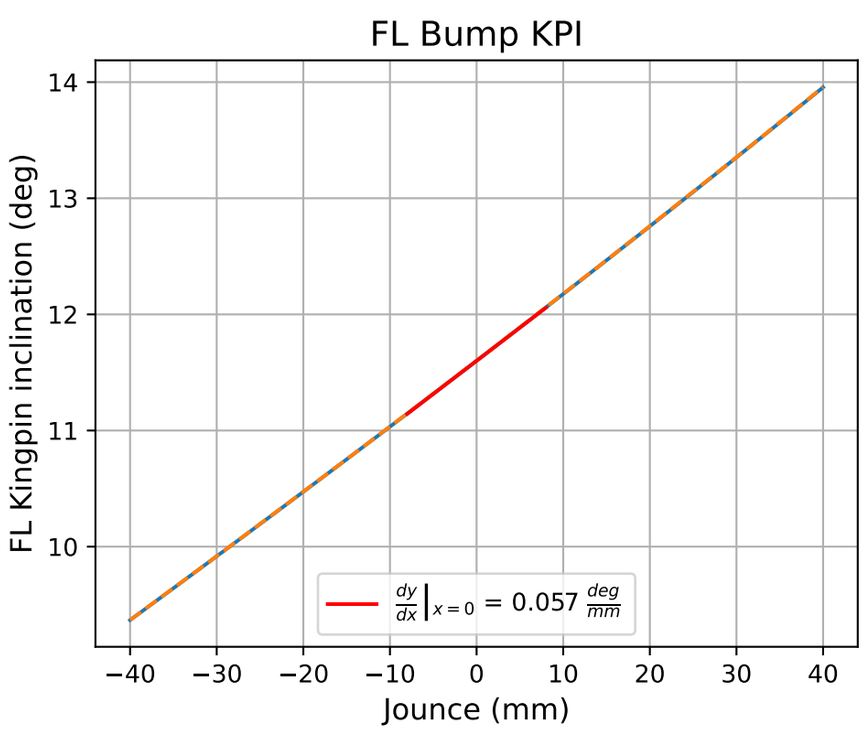


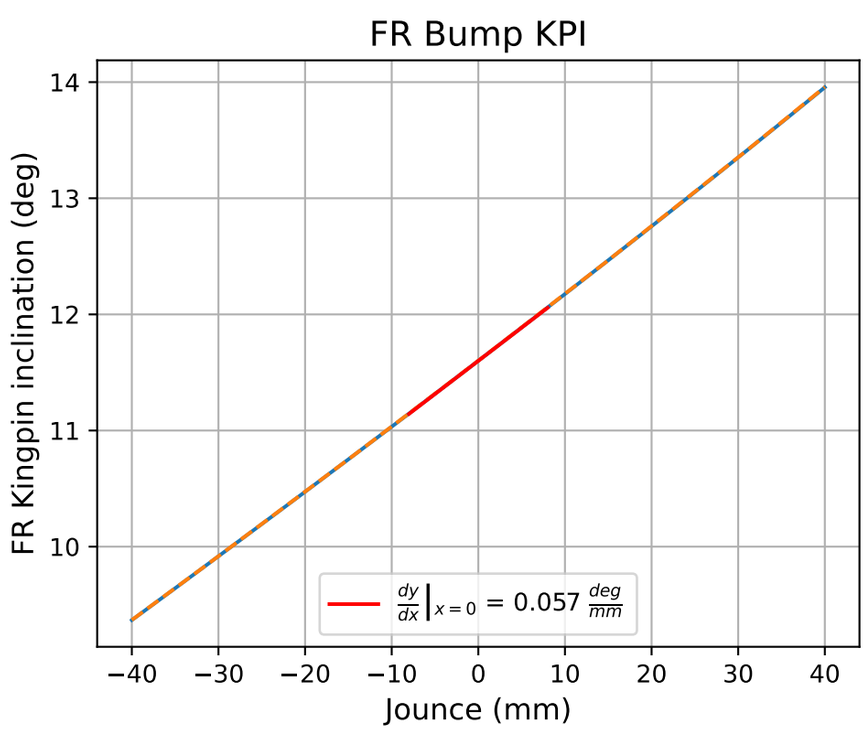
Linear Fit $f(x) = a_1x + a_0$

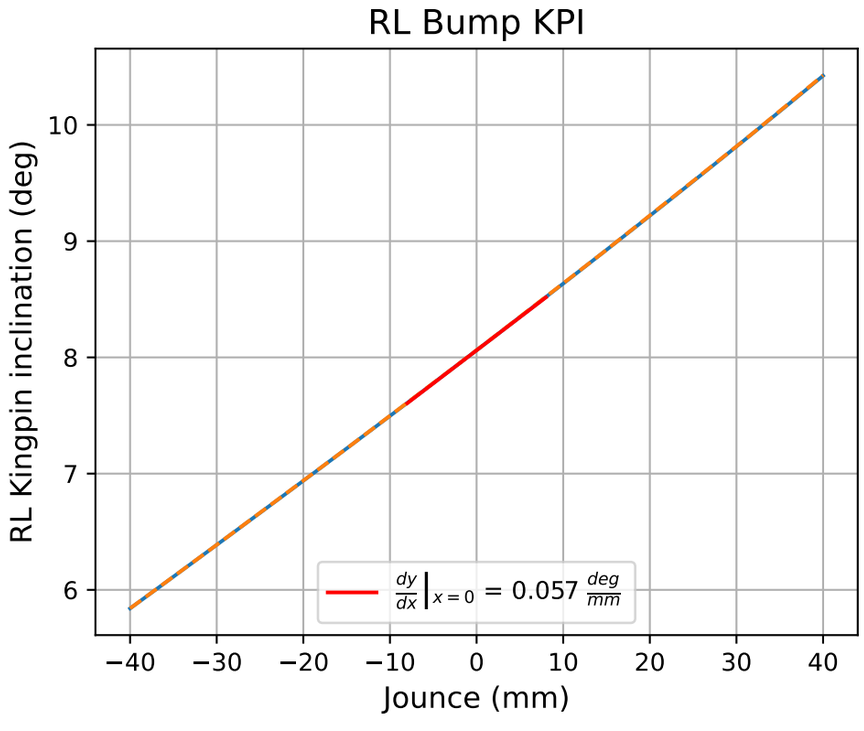
FL	$f(x) = 0.0x + 2.243$
FR	$f(x) = 0.0x + 2.243$
RL	$f(x) = 0.001x + 6.404$
RR	$f(x) = 0.001x + 6.404$

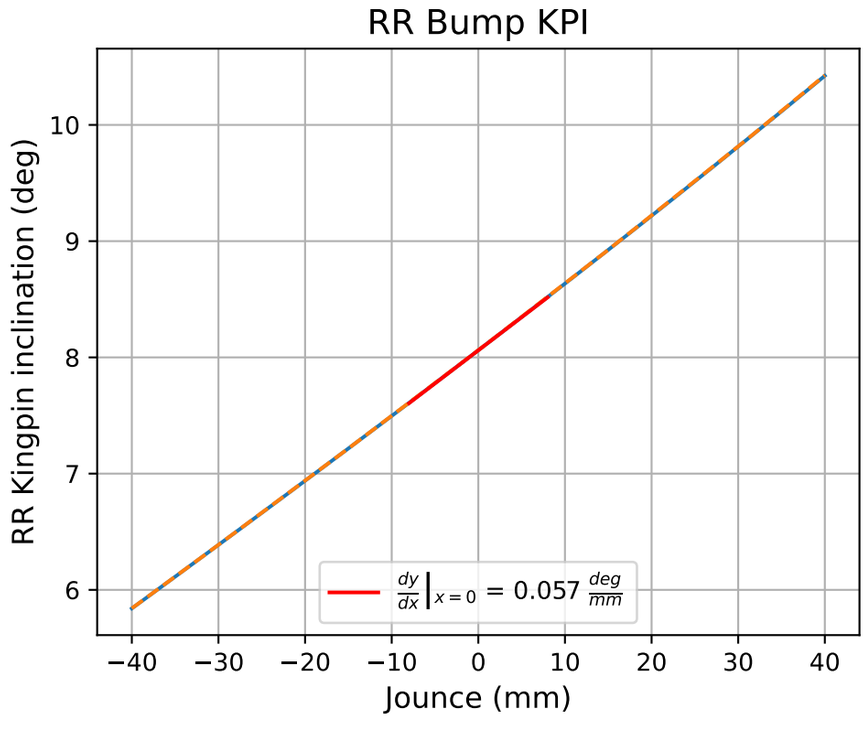
Cubic Fit $f(x) = a_3x^3 + a_2x^2 + a_1x + a_0$

FL	$f(x) = 0.0x^3 + 0.0x^2 + 0.0x + 2.243$
FR	$f(x) = 0.0x^3 + 0.0x^2 + 0.0x + 2.243$
RL	$f(x) = 0.0x^3 + 0.0x^2 + 0.001x + 6.404$
RR	$f(x) = 0.0x^3 + 0.0x^2 + 0.001x + 6.404$







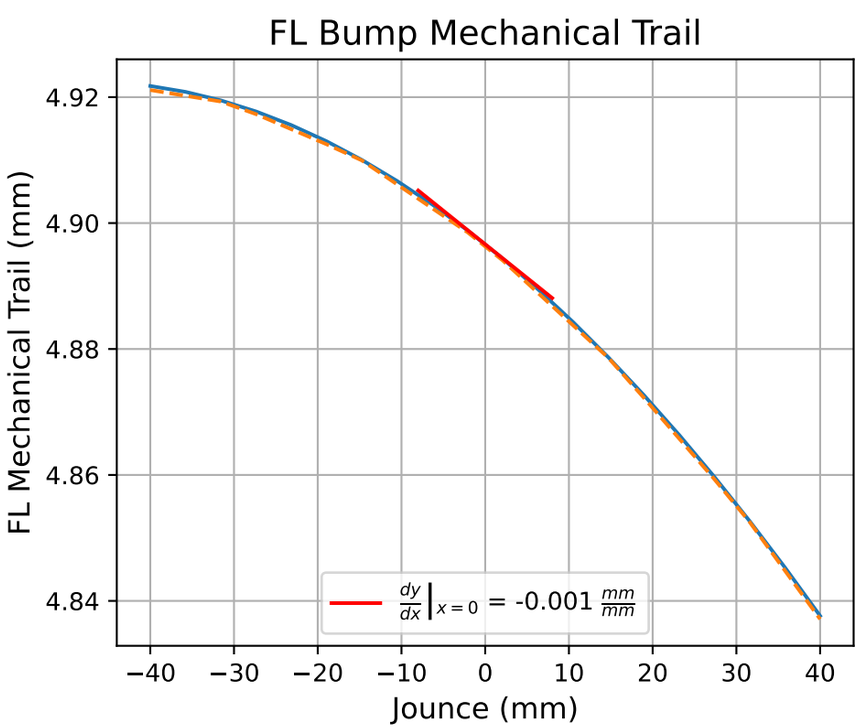


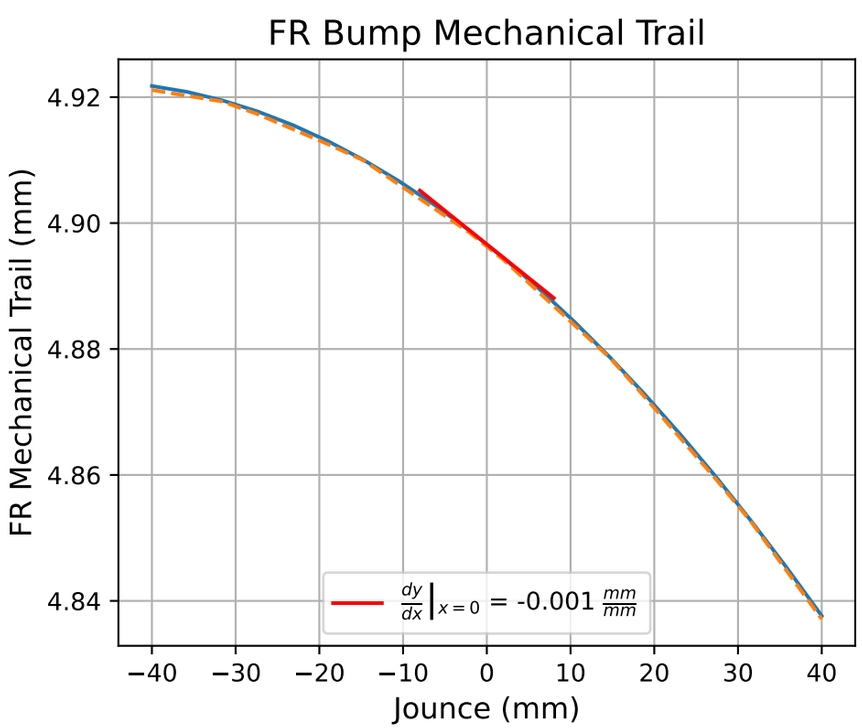
Linear Fit $f(x) = a_1x + a_0$

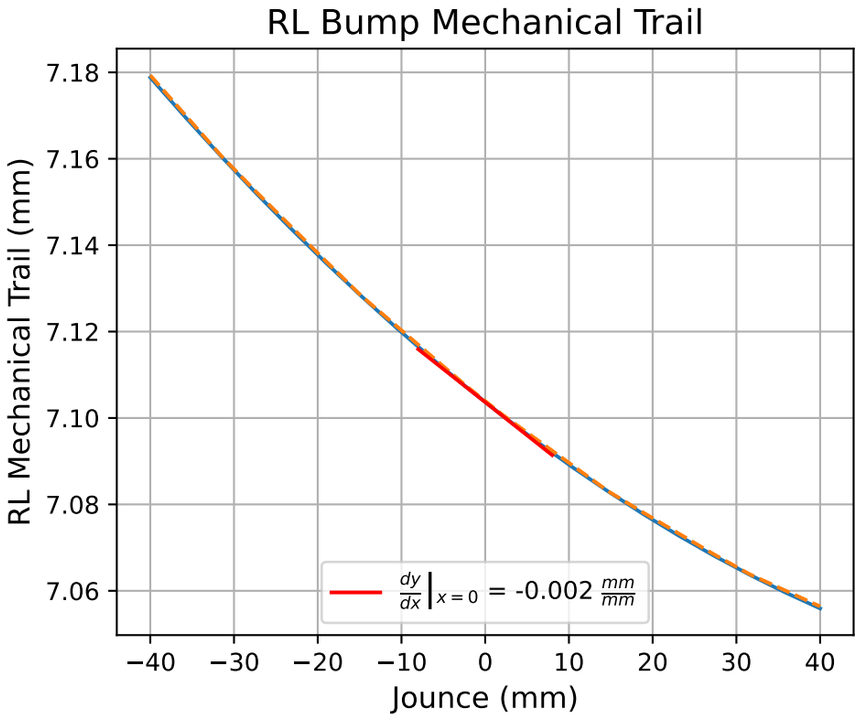
FL	$f(x) = 0.057x + 11.6$
FR	$f(x) = 0.057x + 11.6$
RL	$f(x) = 0.057x + 8.061$
RR	$f(x) = 0.057x + 8.061$

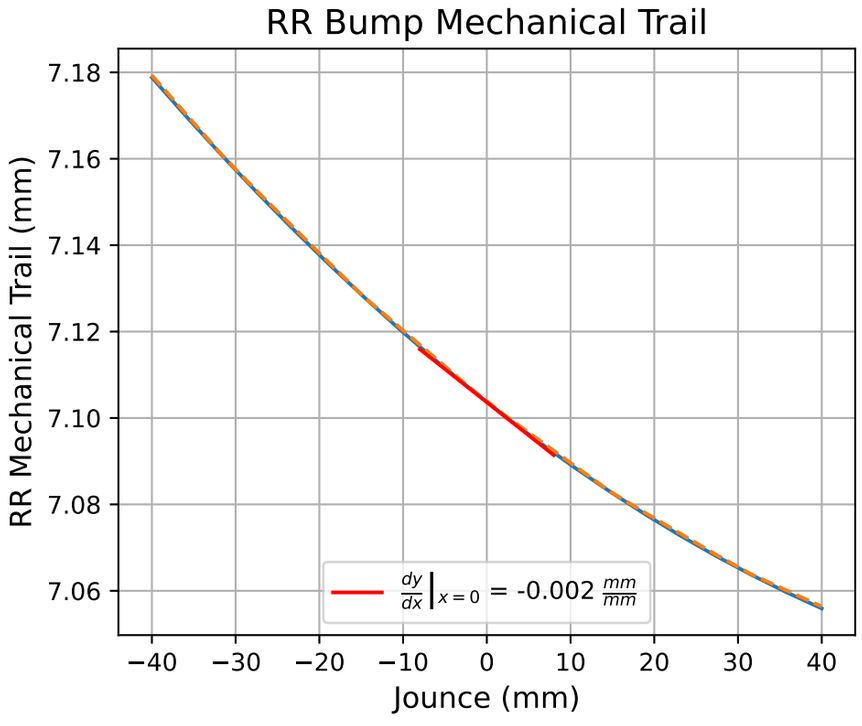
Cubic Fit $f(x) = a_3x^3 + a_2x^2 + a_1x + a_0$

FL	$f(x) = 0.0x^3 + 0.0x^2 + 0.057x + 11.6$
FR	$f(x) = 0.0x^3 + 0.0x^2 + 0.057x + 11.6$
RL	$f(x) = 0.0x^3 + 0.0x^2 + 0.057x + 8.061$
RR	$f(x) = 0.0x^3 + 0.0x^2 + 0.057x + 8.061$







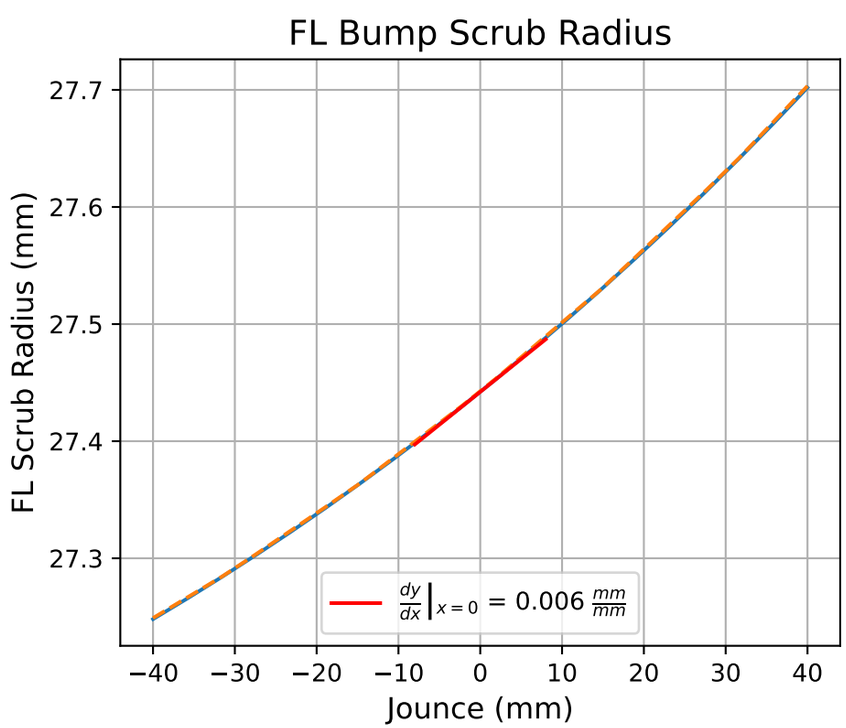


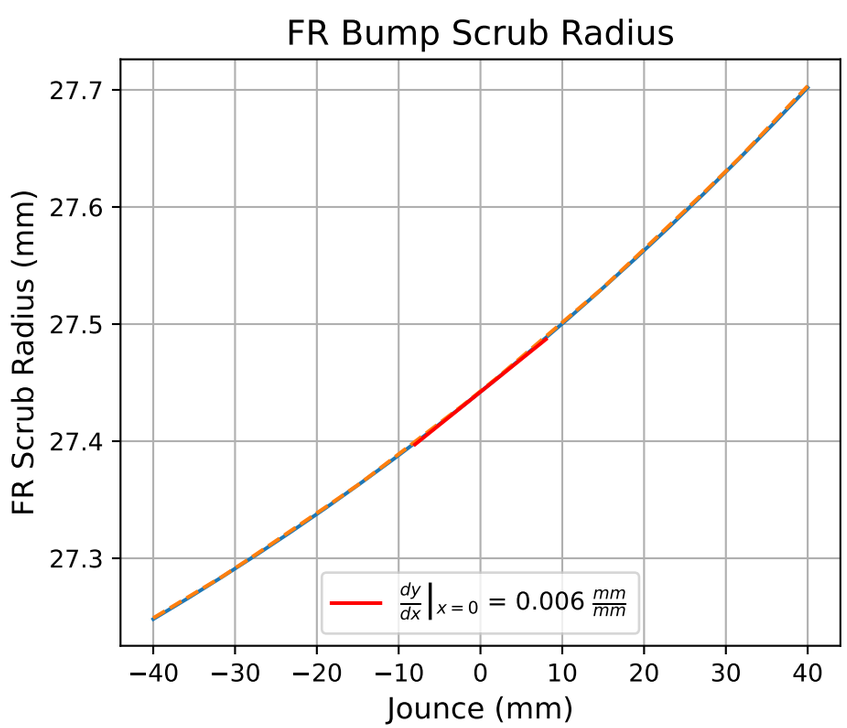
Linear Fit $f(x) = a_1x + a_0$

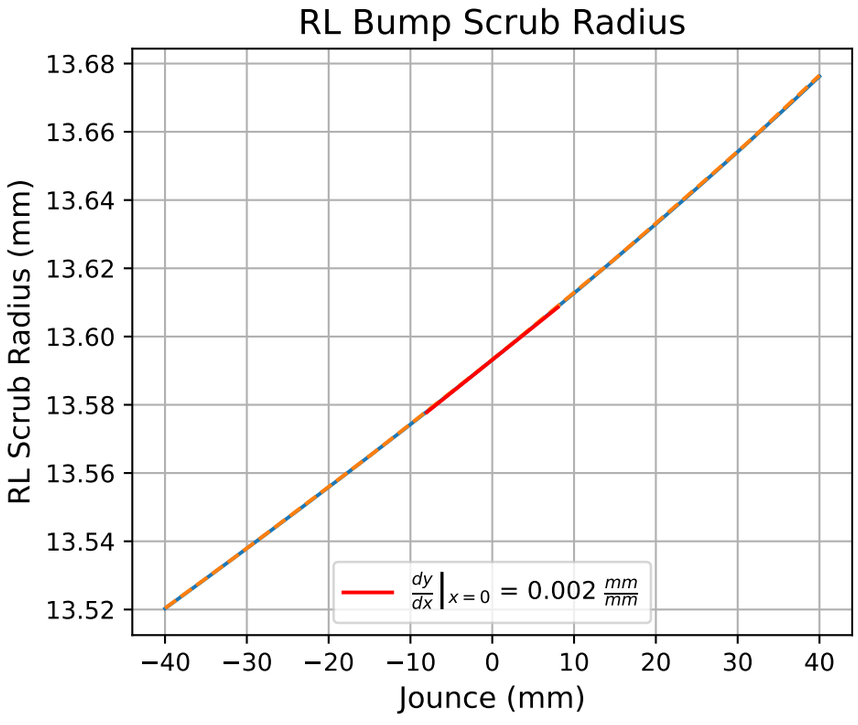
FL	$f(x) = -0.001x + 4.897$
FR	$f(x) = -0.001x + 4.897$
RL	$f(x) = -0.002x + 7.104$
RR	$f(x) = -0.002x + 7.104$

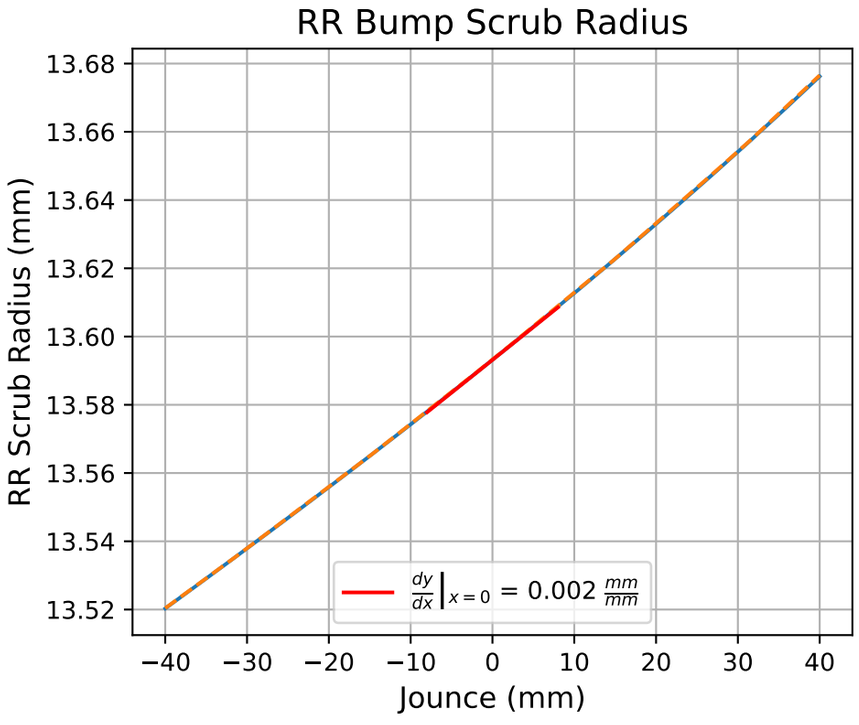
Cubic Fit $f(x) = a_3x^3 + a_2x^2 + a_1x + a_0$

FL	$f(x) = 0.0x^3 + -0.0x^2 + -0.001x + 4.897$
FR	$f(x) = 0.0x^3 + -0.0x^2 + -0.001x + 4.897$
RL	$f(x) = -0.0x^3 + 0.0x^2 + -0.002x + 7.104$
RR	$f(x) = -0.0x^3 + 0.0x^2 + -0.002x + 7.104$







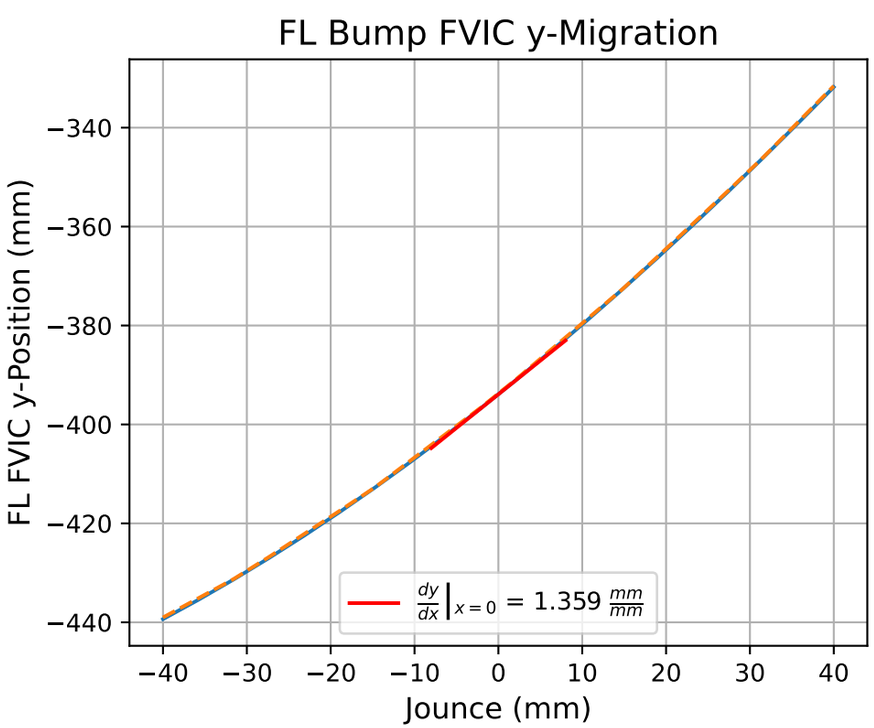


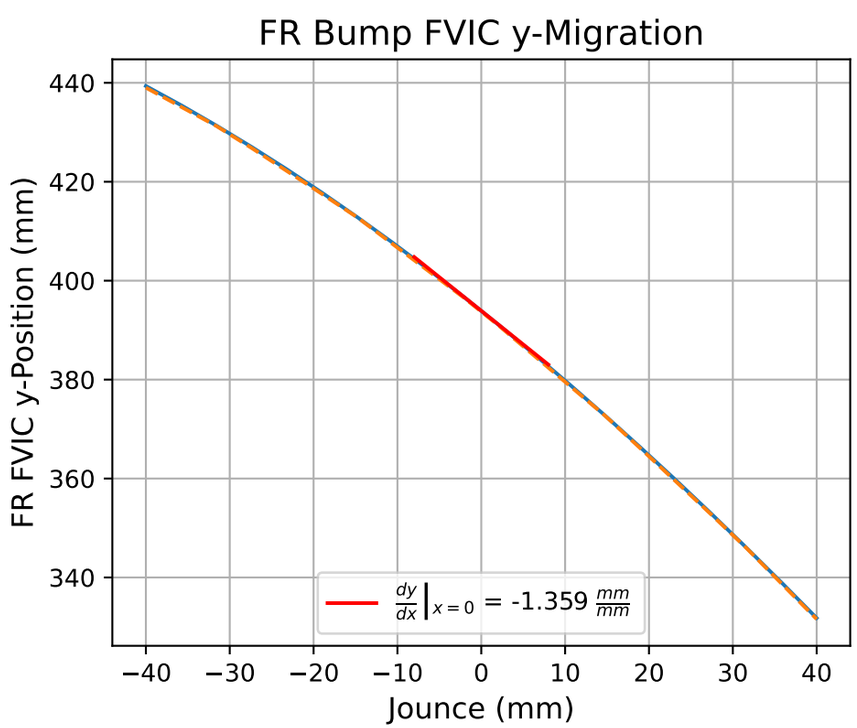
Linear Fit $f(x) = a_1x + a_0$

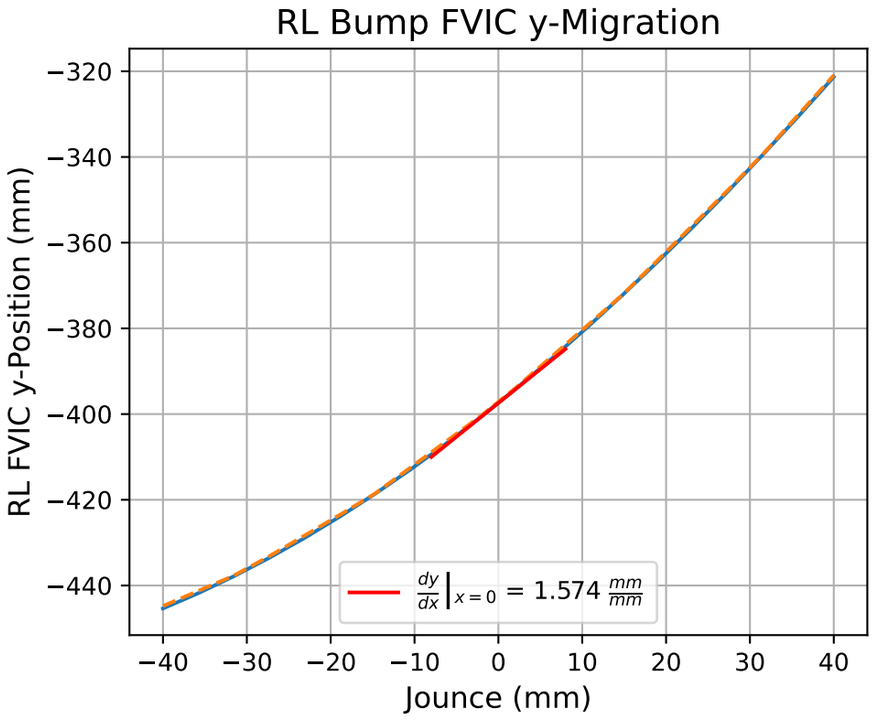
FL	$f(x) = 0.006x + 27.442$
FR	$f(x) = 0.006x + 27.442$
RL	$f(x) = 0.002x + 13.593$
RR	$f(x) = 0.002x + 13.593$

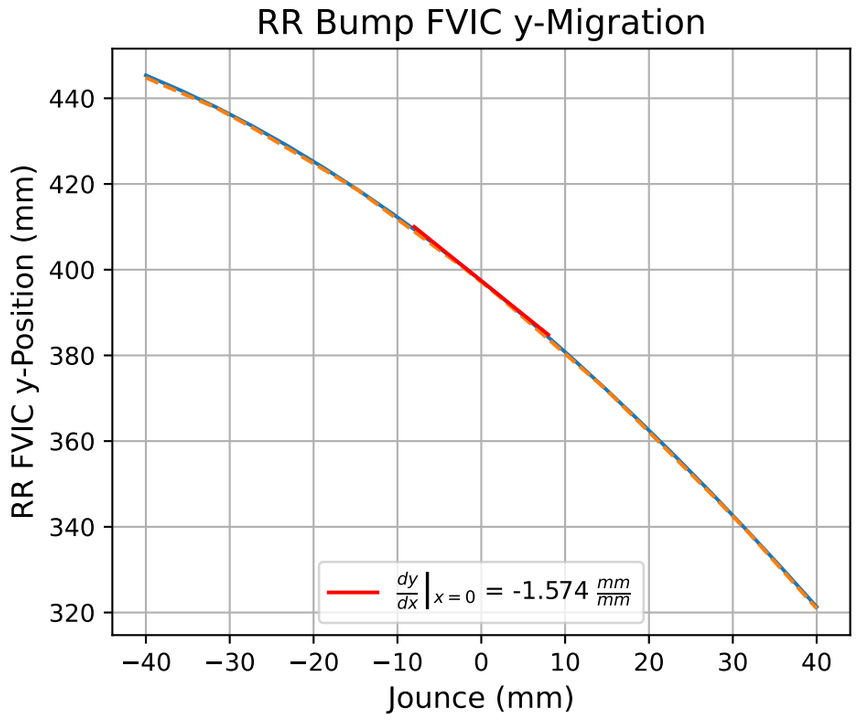
Cubic Fit $f(x) = a_3x^3 + a_2x^2 + a_1x + a_0$

FL	$f(x) = 0.0x^3 + 0.0x^2 + 0.006x + 27.442$
FR	$f(x) = 0.0x^3 + 0.0x^2 + 0.006x + 27.442$
RL	$f(x) = 0.0x^3 + 0.0x^2 + 0.002x + 13.593$
RR	$f(x) = 0.0x^3 + 0.0x^2 + 0.002x + 13.593$









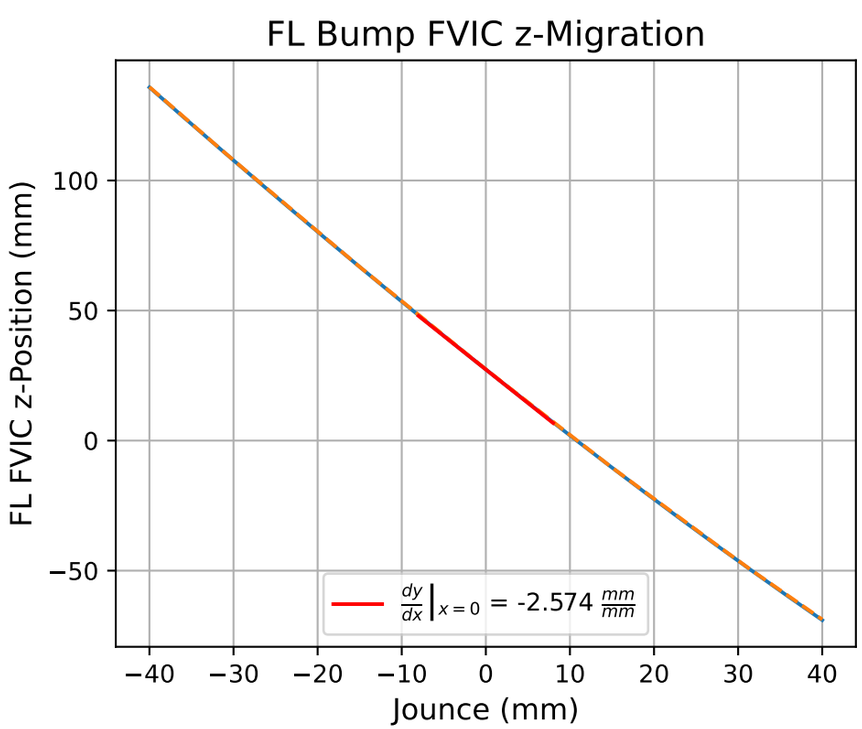
Full Model
FMU

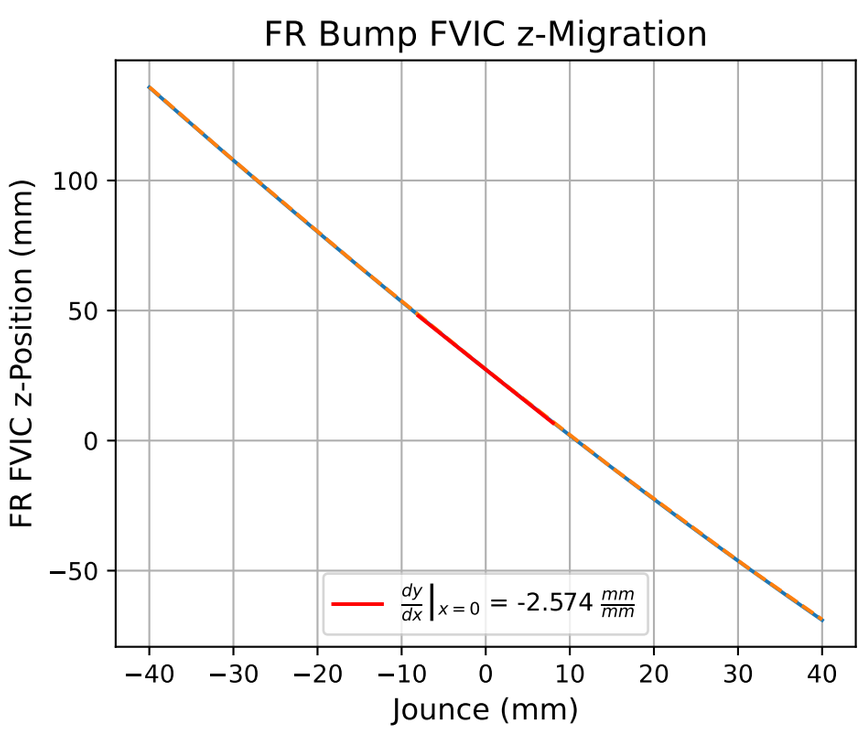
Linear Fit $f(x) = a_1x + a_0$

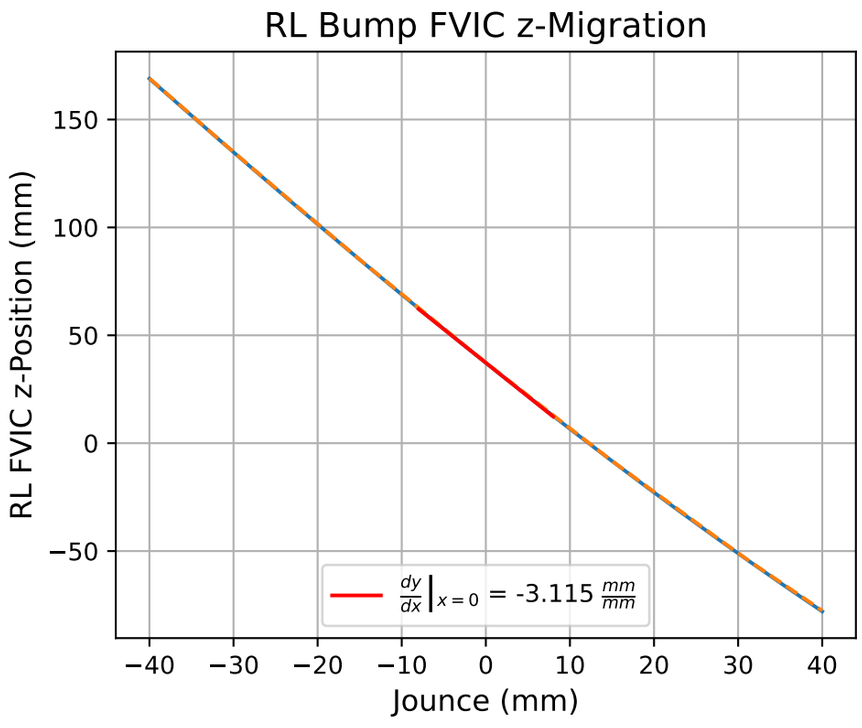
FL	$f(x) = 1.359x + -393.907$
FR	$f(x) = -1.359x + 393.907$
RL	$f(x) = 1.574x + -397.417$
RR	$f(x) = -1.574x + 397.417$

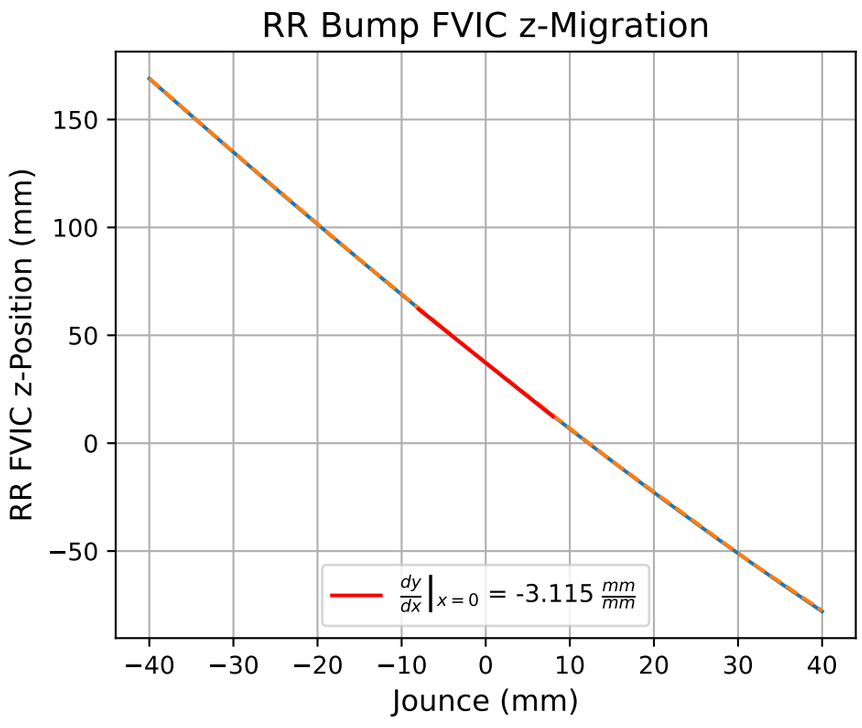
Cubic Fit $f(x) = a_3x^3 + a_2x^2 + a_1x + a_0$

FL	$f(x) = -0.0x^3 + 0.005x^2 + 1.359x + -393.906$
FR	$f(x) = 0.0x^3 + -0.005x^2 + -1.359x + 393.906$
RL	$f(x) = -0.0x^3 + 0.009x^2 + 1.574x + -397.413$
RR	$f(x) = 0.0x^3 + -0.009x^2 + -1.574x + 397.413$







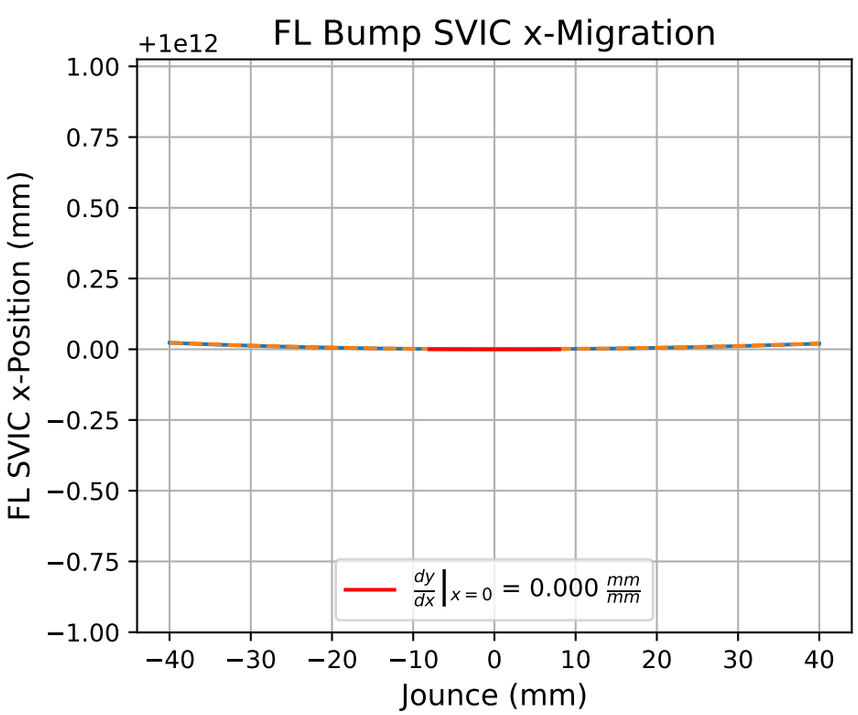


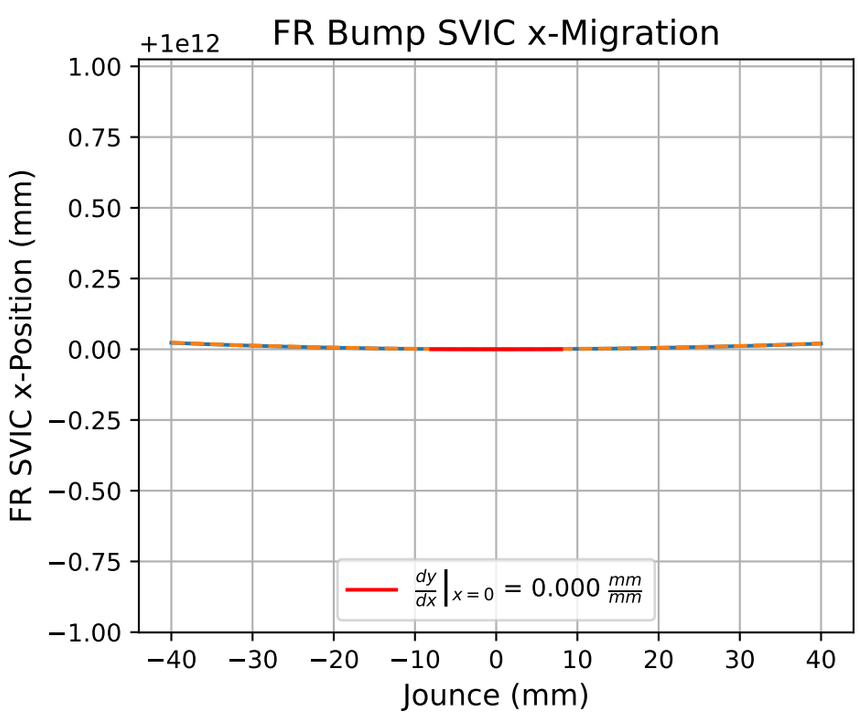
Linear Fit $f(x) = a_1x + a_0$

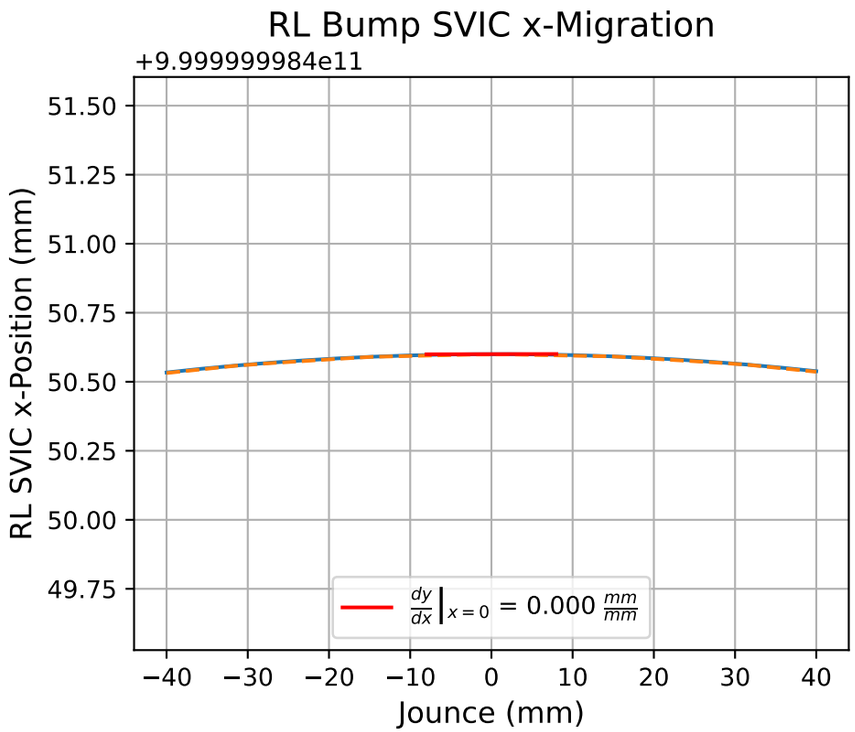
FL	$f(x) = -2.574x + 27.34$
FR	$f(x) = -2.574x + 27.34$
RL	$f(x) = -3.115x + 37.239$
RR	$f(x) = -3.115x + 37.239$

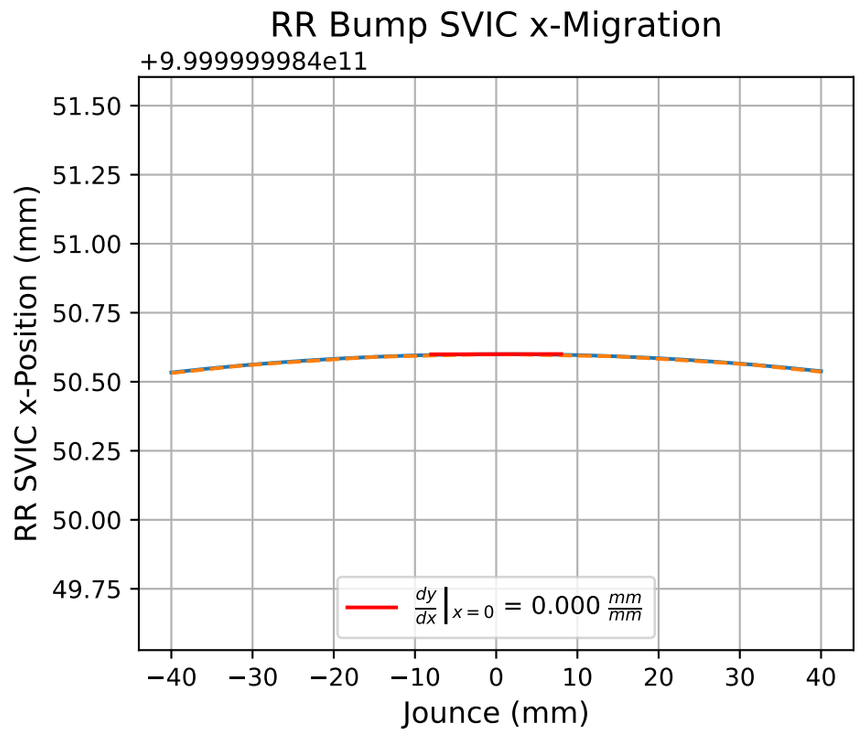
Cubic Fit $f(x) = a_3x^3 + a_2x^2 + a_1x + a_0$

FL	$f(x) = 0.0x^3 + 0.004x^2 + -2.574x + 27.343$
FR	$f(x) = 0.0x^3 + 0.004x^2 + -2.574x + 27.343$
RL	$f(x) = 0.0x^3 + 0.005x^2 + -3.115x + 37.245$
RR	$f(x) = 0.0x^3 + 0.005x^2 + -3.115x + 37.245$







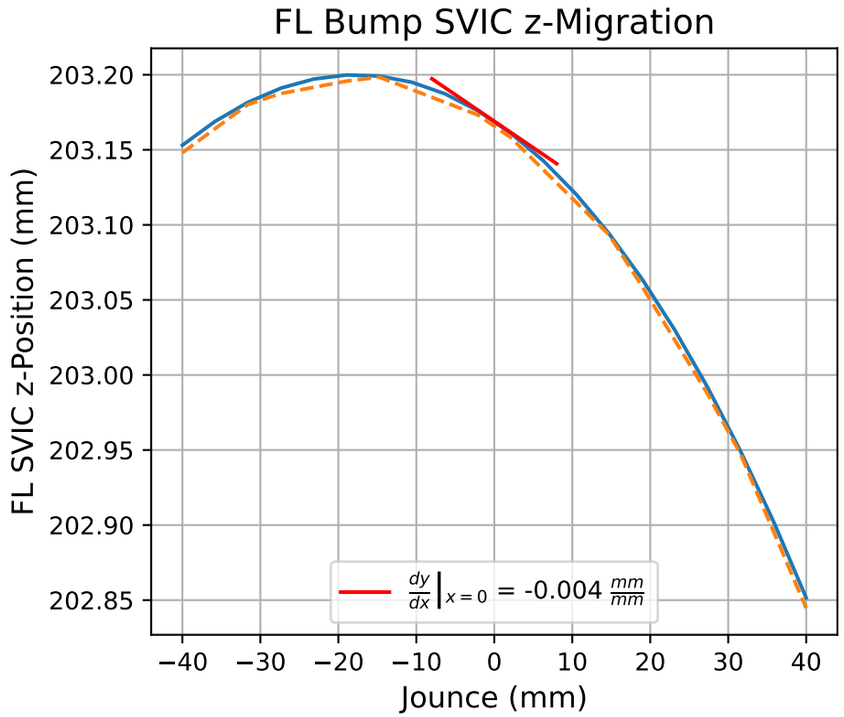


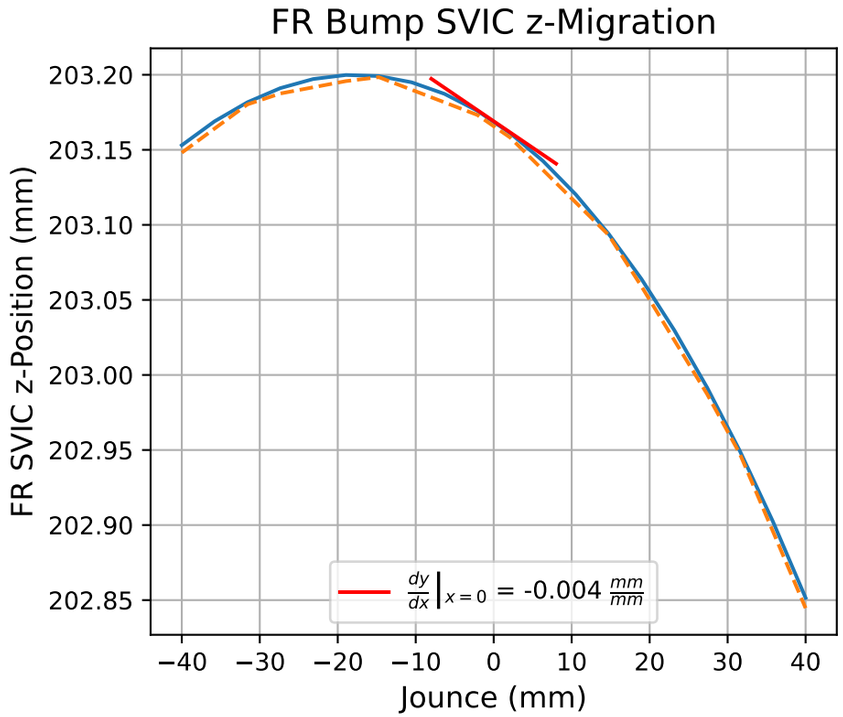
Linear Fit $f(x) = a_1x + a_0$

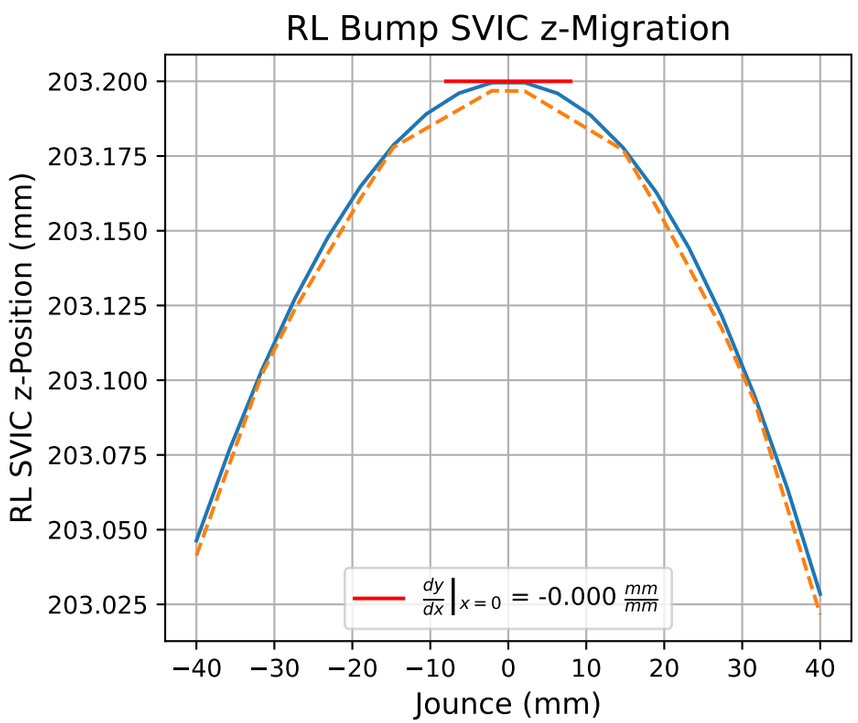
FL	$f(x) = 0.0x + 1.000e+12$
FR	$f(x) = 0.0x + 1.000e+12$
RL	$f(x) = 0.0x + 1.000e+12$
RR	$f(x) = 0.0x + 1.000e+12$

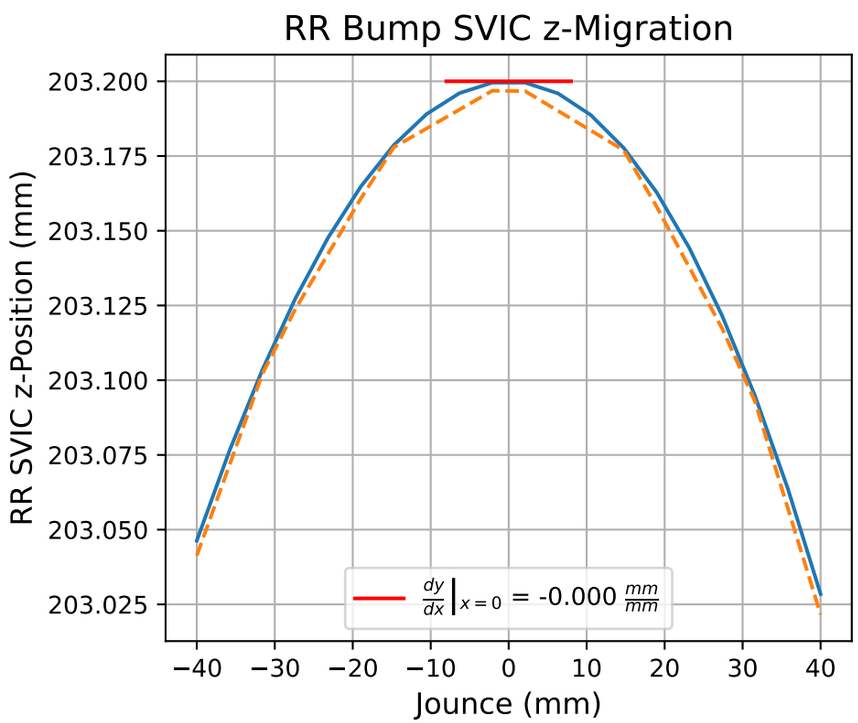
Cubic Fit $f(x) = a_3x^3 + a_2x^2 + a_1x + a_0$

FL	$f(x) = 0.0x^3 + 0.0x^2 + -0.0x + 1.0e+12$
FR	$f(x) = 0.0x^3 + 0.0x^2 + -0.0x + 1.0e+12$
RL	$f(x) = 0.0x^3 + -0.0x^2 + 0.0x + 1.0e+12$
RR	$f(x) = 0.0x^3 + -0.0x^2 + 0.0x + 1.0e+12$







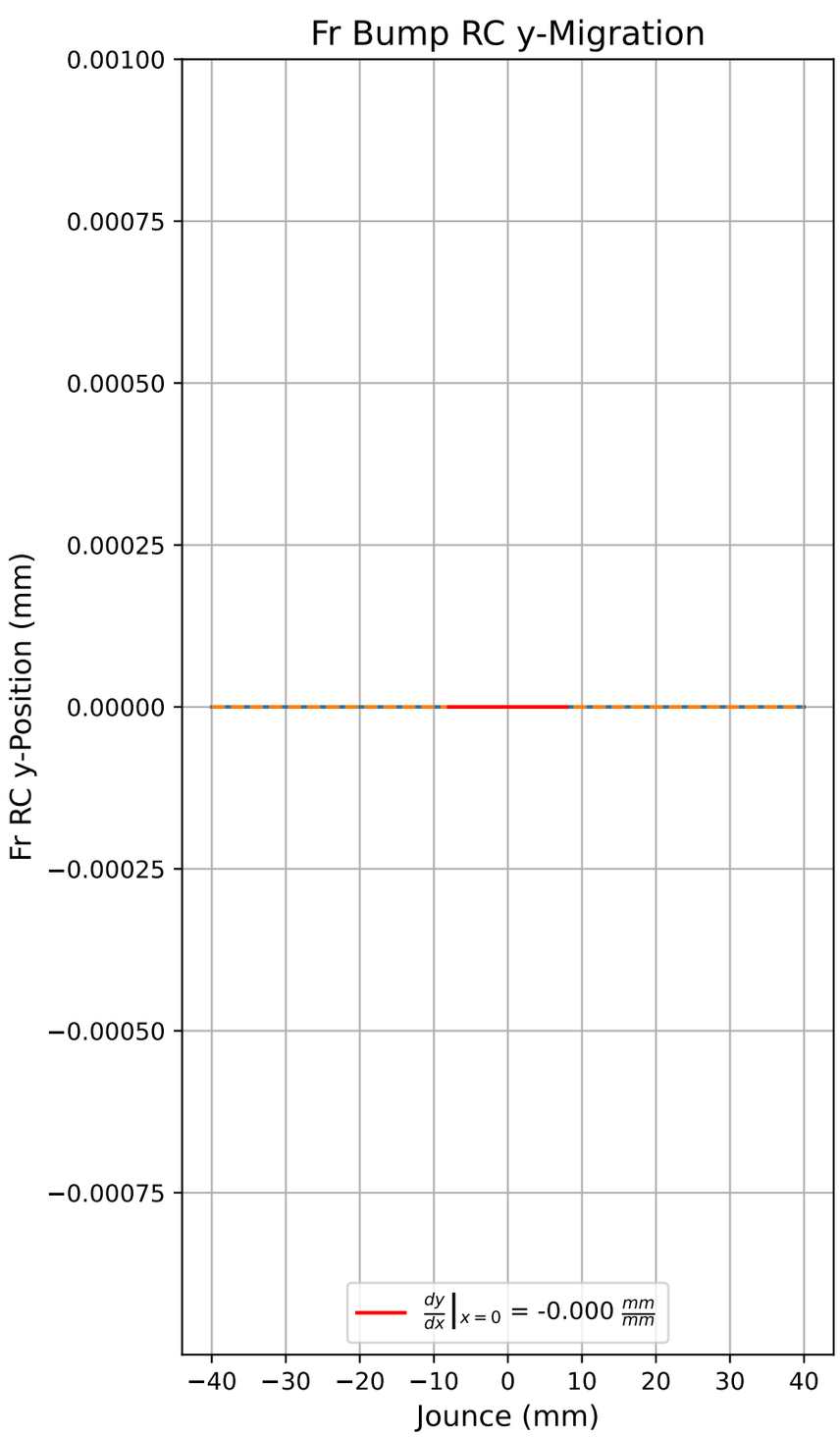


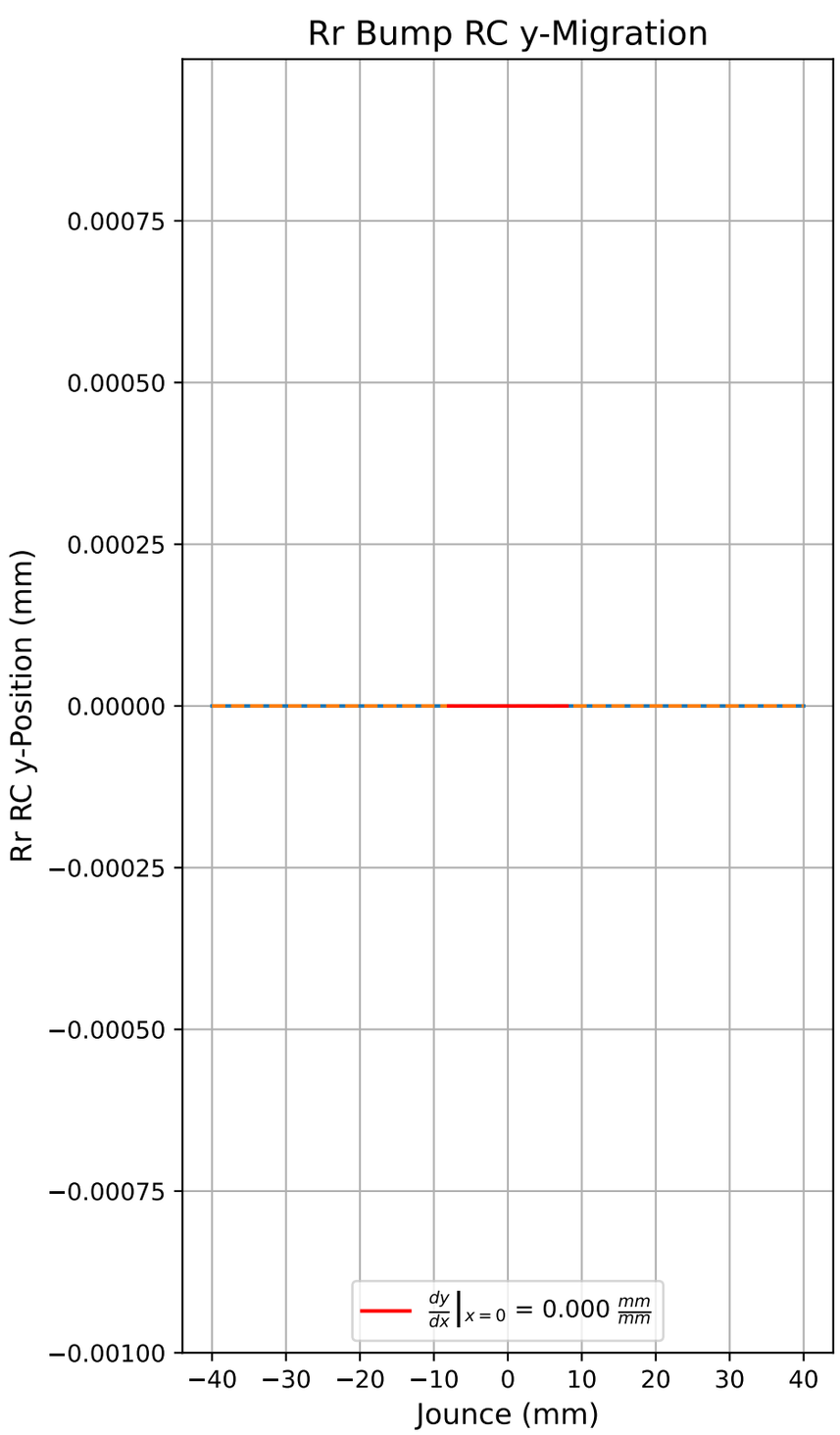
Linear Fit $f(x) = a_1x + a_0$

FL	$f(x) = -0.004x + 203.169$
FR	$f(x) = -0.004x + 203.169$
RL	$f(x) = -0.0x + 203.2$
RR	$f(x) = -0.0x + 203.2$

Cubic Fit $f(x) = a_3x^3 + a_2x^2 + a_1x + a_0$

FL	$f(x) = -0.0x^3 + -0.0x^2 + -0.004x + 203.169$
FR	$f(x) = -0.0x^3 + -0.0x^2 + -0.004x + 203.169$
RL	$f(x) = -0.0x^3 + -0.0x^2 + 0.0x + 203.2$
RR	$f(x) = -0.0x^3 + -0.0x^2 + 0.0x + 203.2$



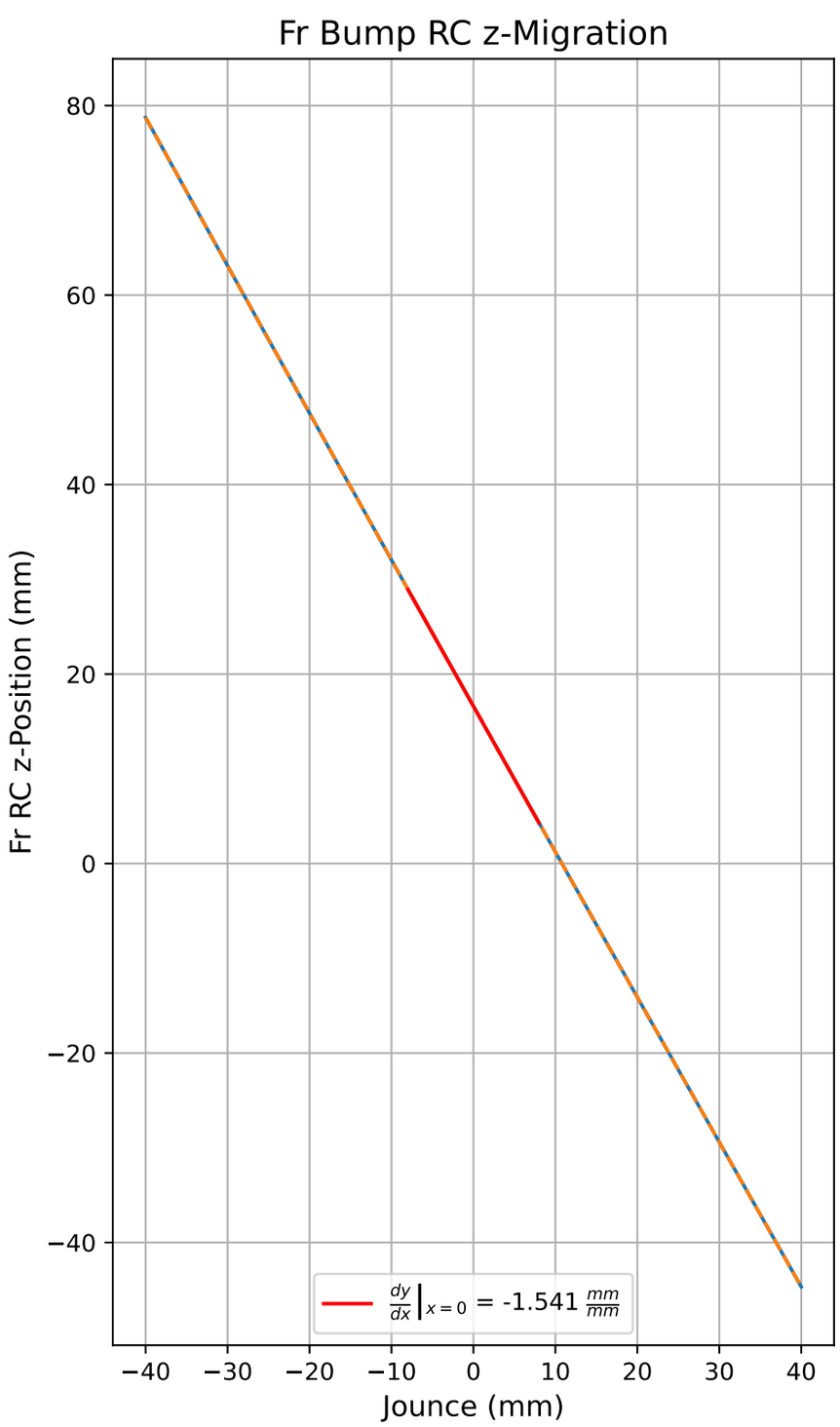


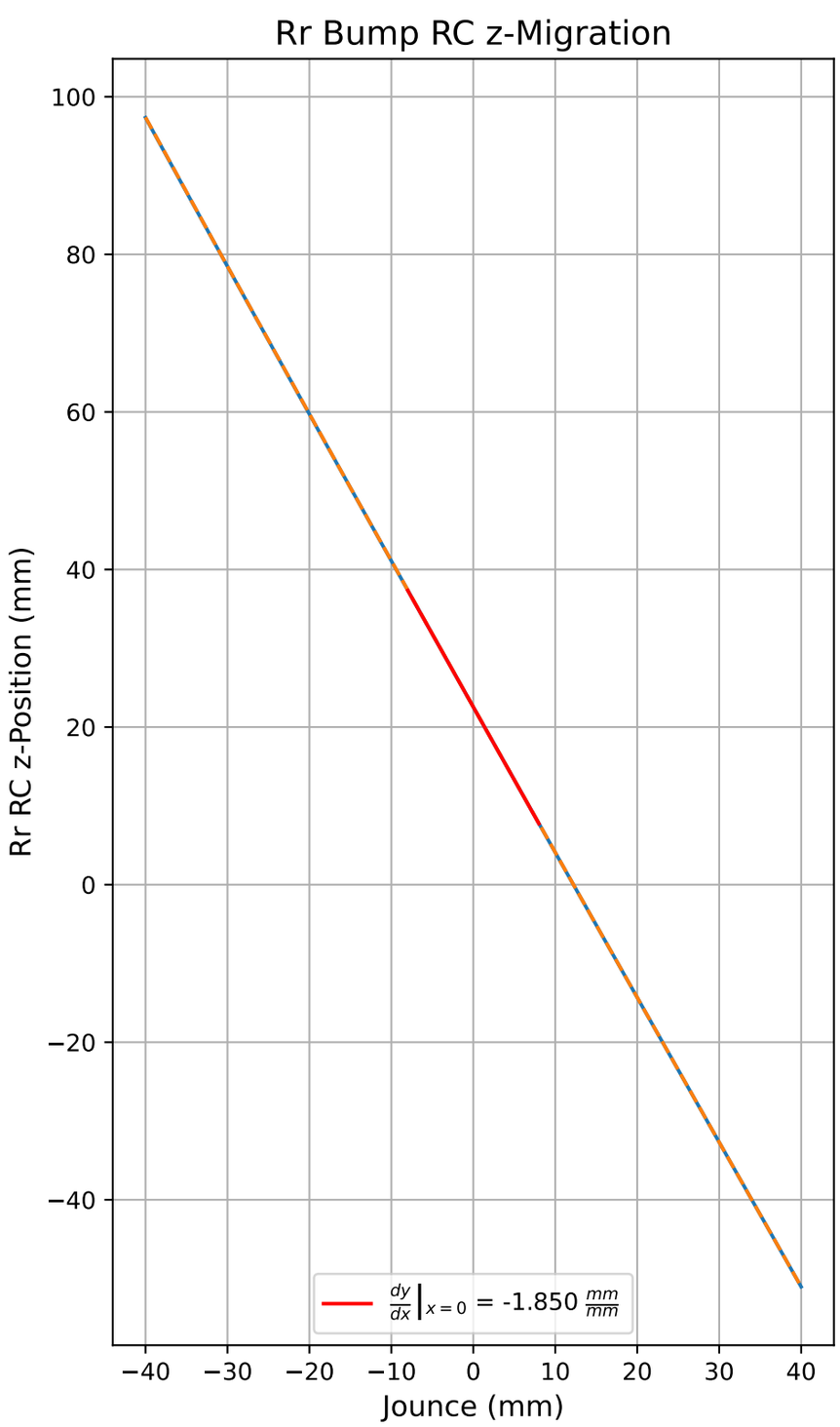
Linear Fit $f(x) = a_1x + a_0$

Fr	$f(x) = -0.0x + -0.0$
Rr	$f(x) = 0.0x + -0.0$

Cubic Fit $f(x) = a_3x^3 + a_2x^2 + a_1x + a_0$

Fr	$f(x) = -0.0x^3 + -0.0x^2 + 0.0x + 0.0$
Rr	$f(x) = 0.0x^3 + 0.0x^2 + -0.0x + -0.0$



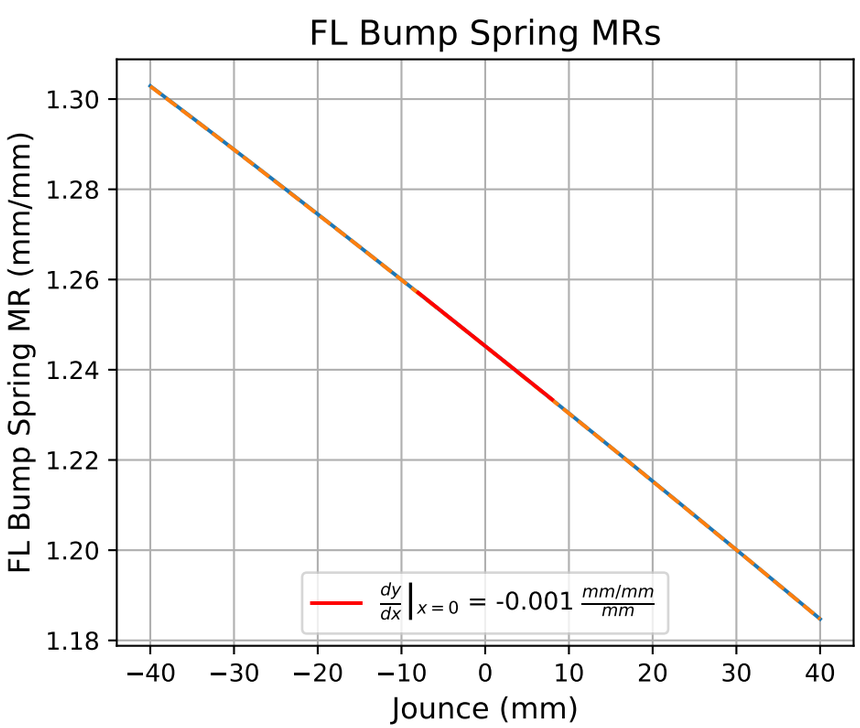


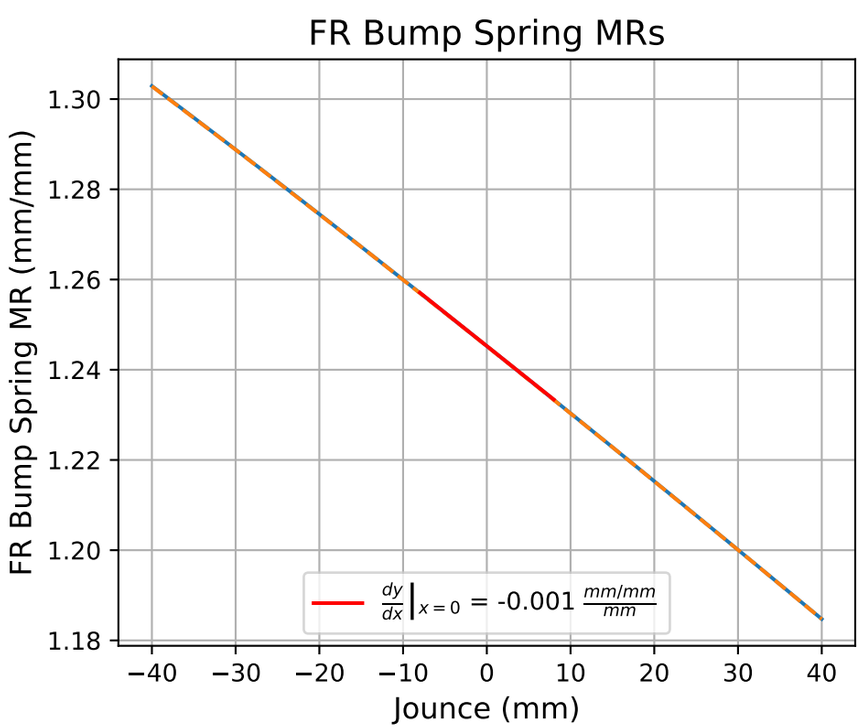
Linear Fit $f(x) = a_1x + a_0$

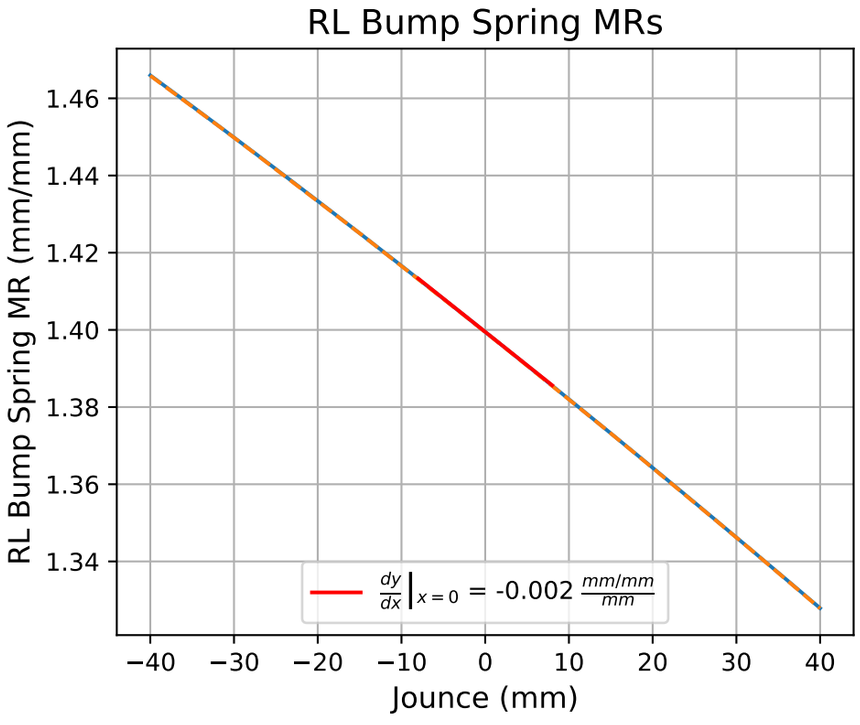
Fr	$f(x) = -1.541x + 16.608$
Rr	$f(x) = -1.85x + 22.543$

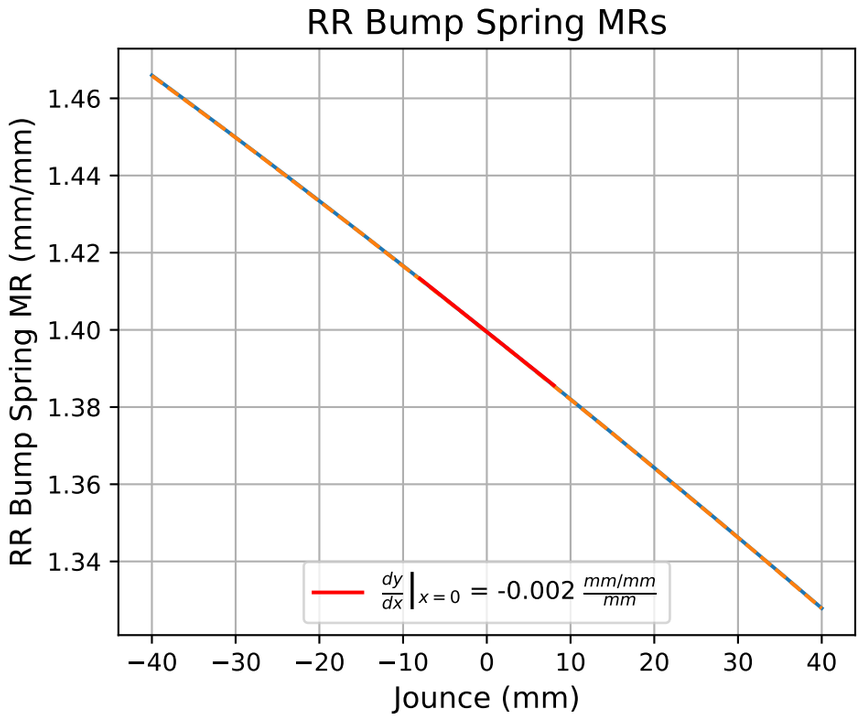
Cubic Fit $f(x) = a_3x^3 + a_2x^2 + a_1x + a_0$

Fr	$f(x) = -0.0x^3 + 0.0x^2 + -1.541x + 16.607$
Rr	$f(x) = -0.0x^3 + 0.0x^2 + -1.85x + 22.541$







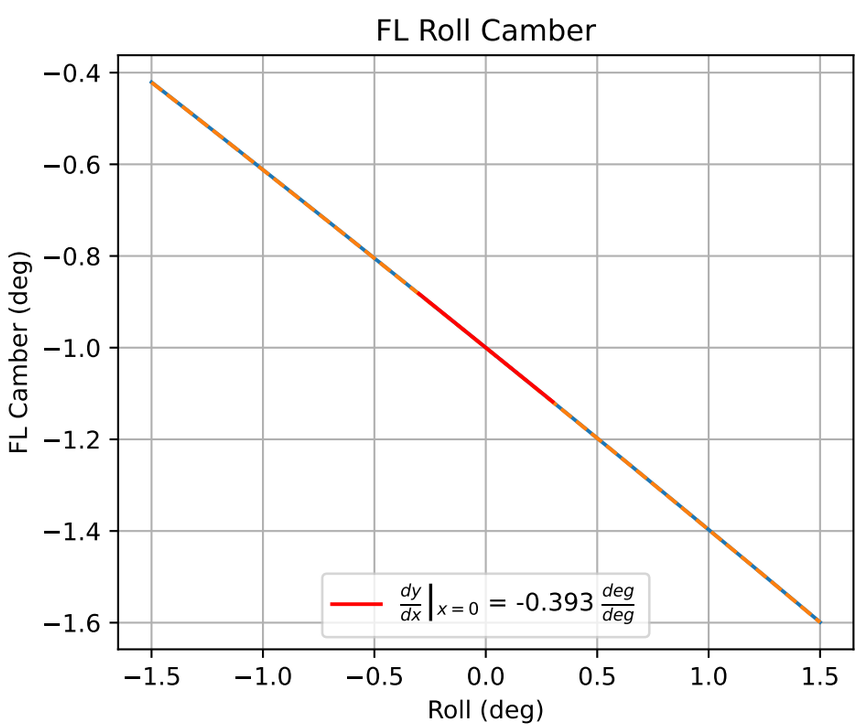


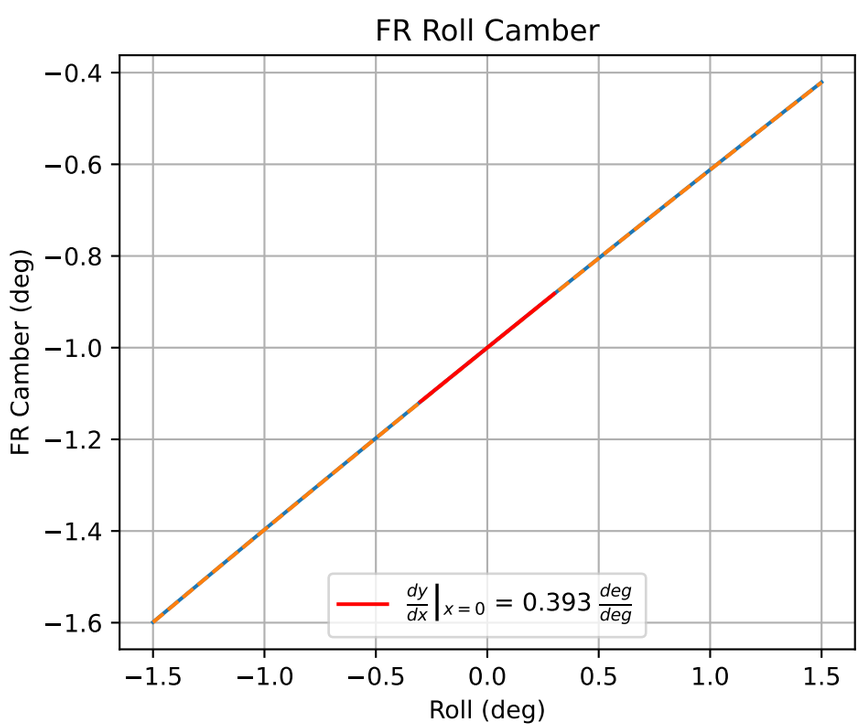
Linear Fit $f(x) = a_1x + a_0$

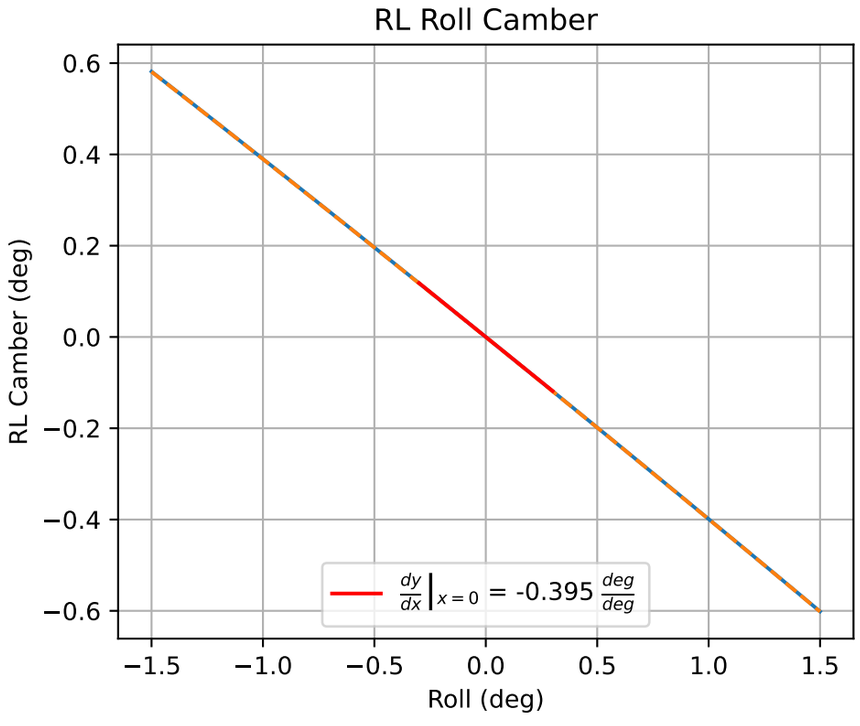
FL	$f(x) = -0.001x + 1.245$
FR	$f(x) = -0.001x + 1.245$
RL	$f(x) = -0.002x + 1.399$
RR	$f(x) = -0.002x + 1.399$

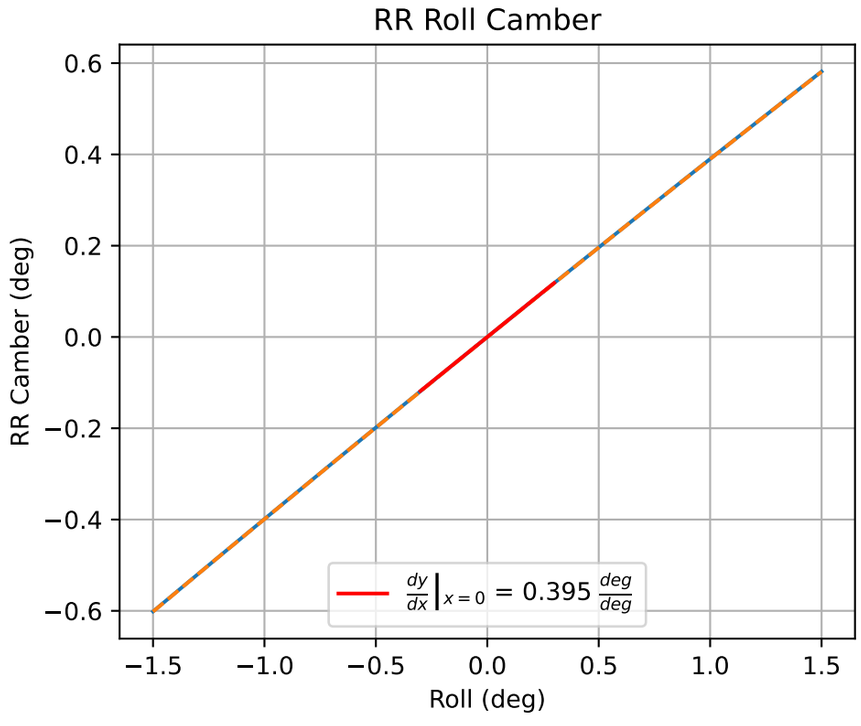
Cubic Fit $f(x) = a_3x^3 + a_2x^2 + a_1x + a_0$

FL	$f(x) = 0.0x^3 + -0.0x^2 + -0.001x + 1.245$
FR	$f(x) = 0.0x^3 + -0.0x^2 + -0.001x + 1.245$
RL	$f(x) = 0.0x^3 + -0.0x^2 + -0.002x + 1.399$
RR	$f(x) = 0.0x^3 + -0.0x^2 + -0.002x + 1.399$







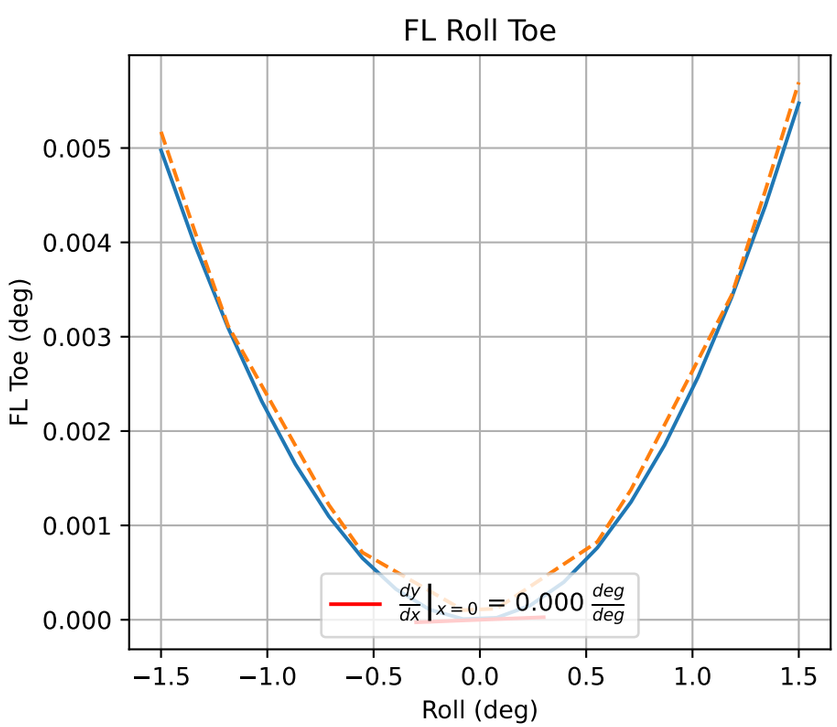


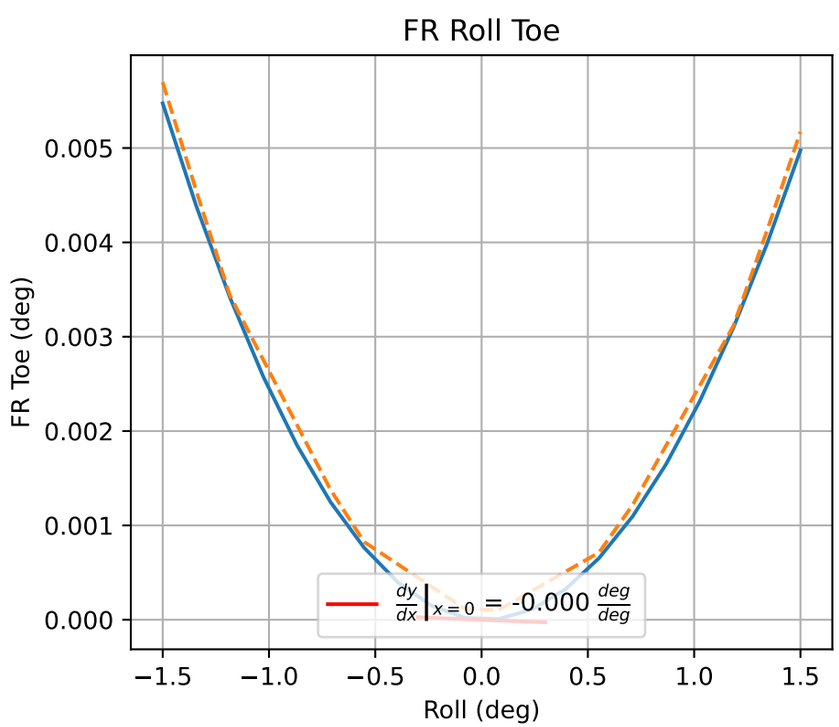
Linear Fit $f(x) = a_1x + a_0$

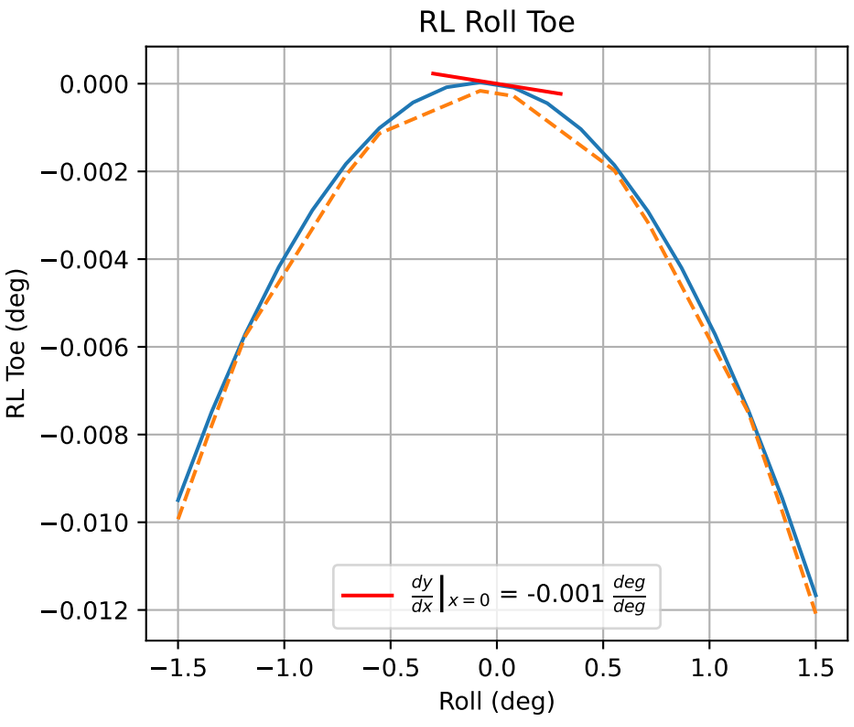
FL	$f(x) = -0.393x + -1.0$
FR	$f(x) = 0.393x + -1.0$
RL	$f(x) = -0.395x + 0.0$
RR	$f(x) = 0.395x + 0.0$

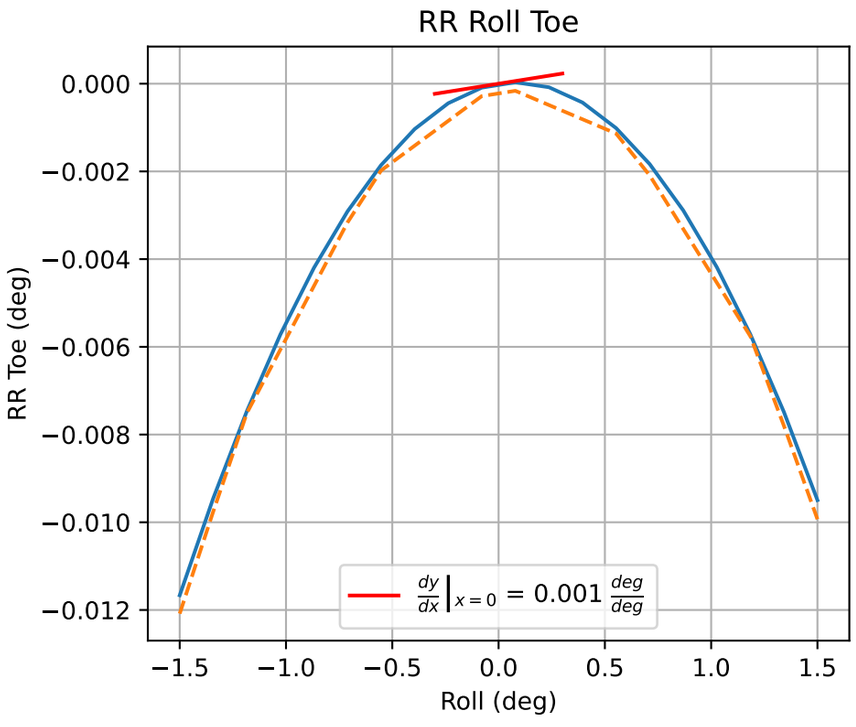
Cubic Fit $f(x) = a_3x^3 + a_2x^2 + a_1x + a_0$

FL	$f(x) = -0.0x^3 + -0.004x^2 + -0.393x + -1.0$
FR	$f(x) = 0.0x^3 + -0.004x^2 + 0.393x + -1.0$
RL	$f(x) = 0.0x^3 + -0.004x^2 + -0.395x + 0.0$
RR	$f(x) = -0.0x^3 + -0.004x^2 + 0.395x + 0.0$







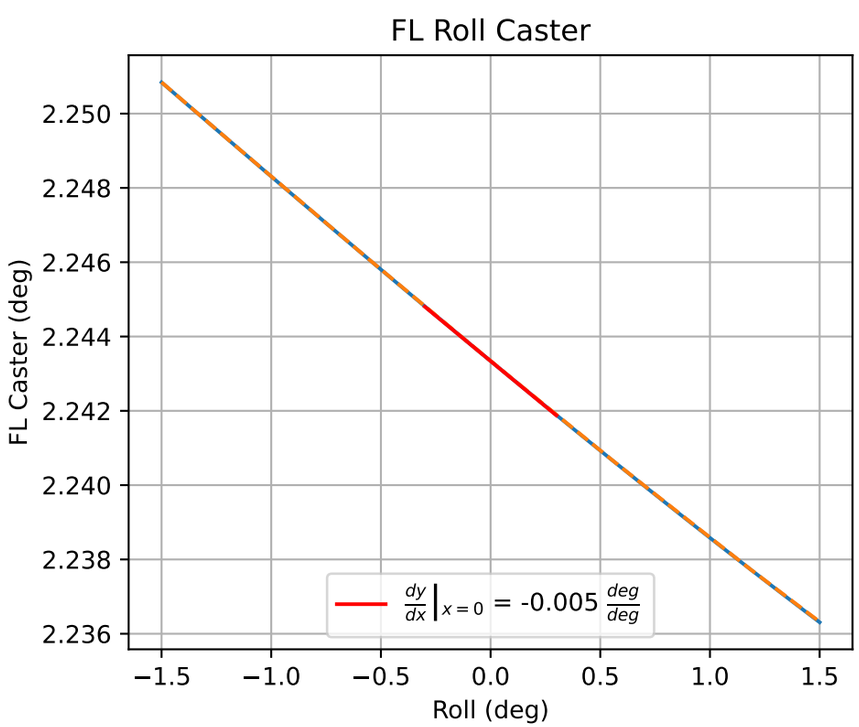


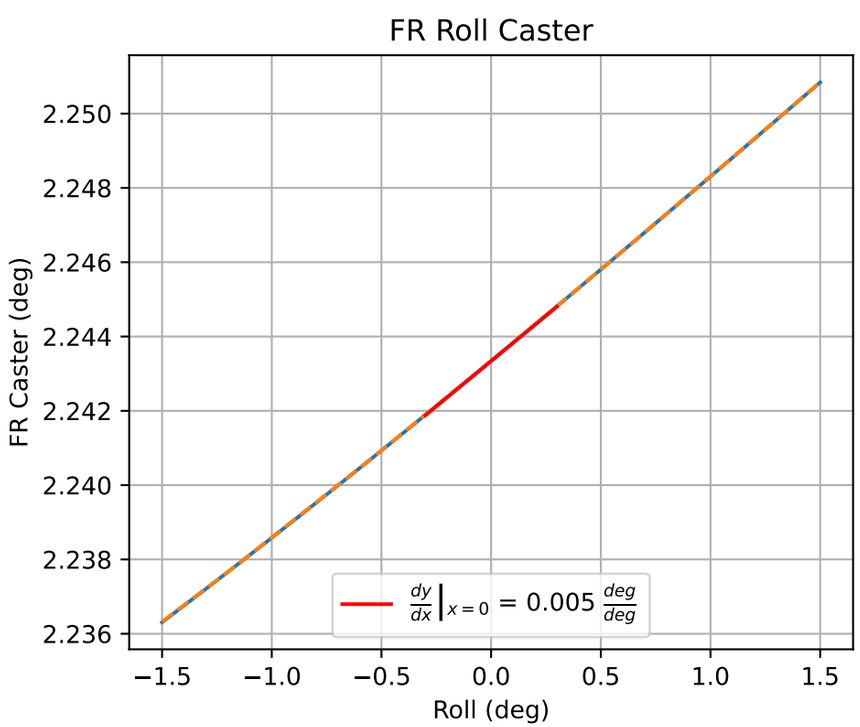
Linear Fit $f(x) = a_1x + a_0$

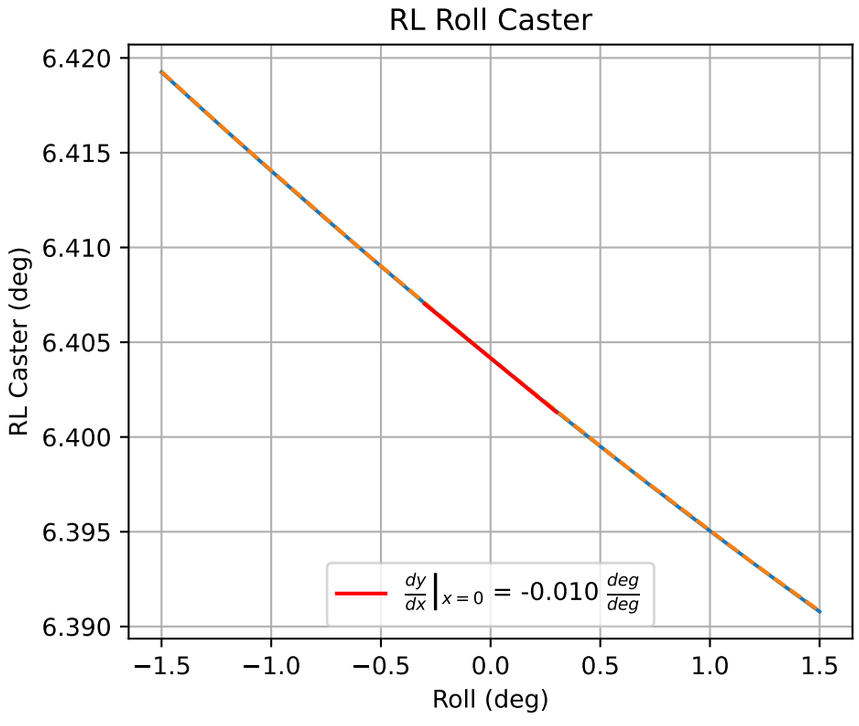
FL	$f(x) = 0.0x + -0.0$
FR	$f(x) = -0.0x + -0.0$
RL	$f(x) = -0.001x + 0.0$
RR	$f(x) = 0.001x + 0.0$

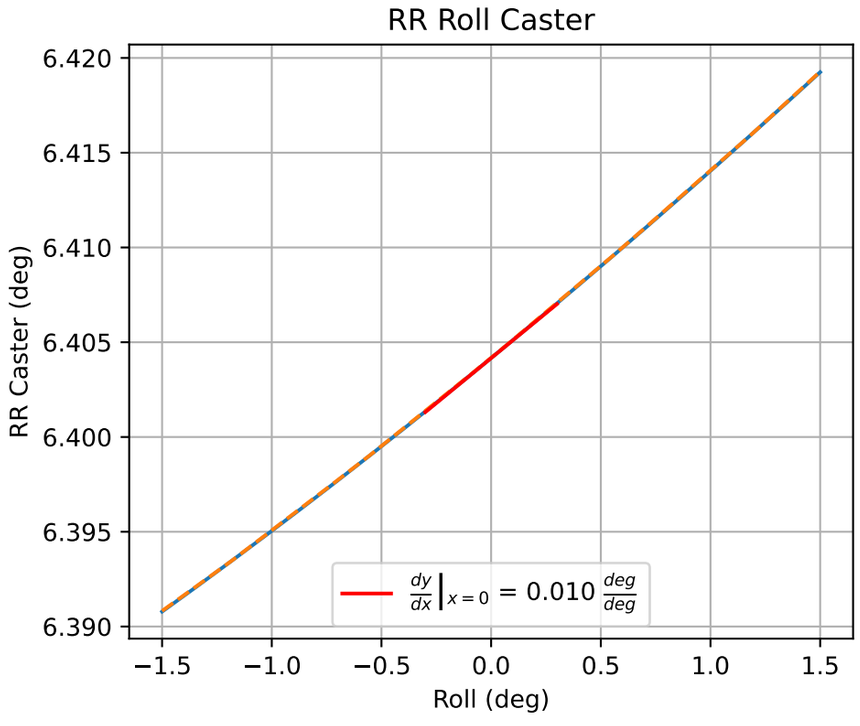
Cubic Fit $f(x) = a_3x^3 + a_2x^2 + a_1x + a_0$

FL	$f(x) = 0.0x^3 + 0.002x^2 + 0.0x + -0.0$
FR	$f(x) = -0.0x^3 + 0.002x^2 + -0.0x + -0.0$
RL	$f(x) = 0.0x^3 + -0.005x^2 + -0.001x + 0.0$
RR	$f(x) = -0.0x^3 + -0.005x^2 + 0.001x + 0.0$







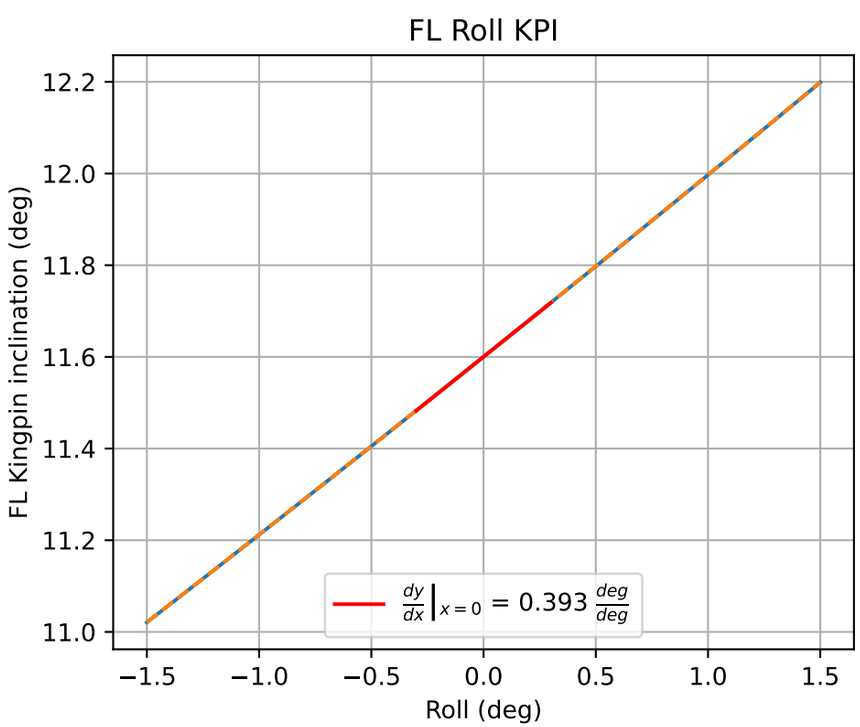


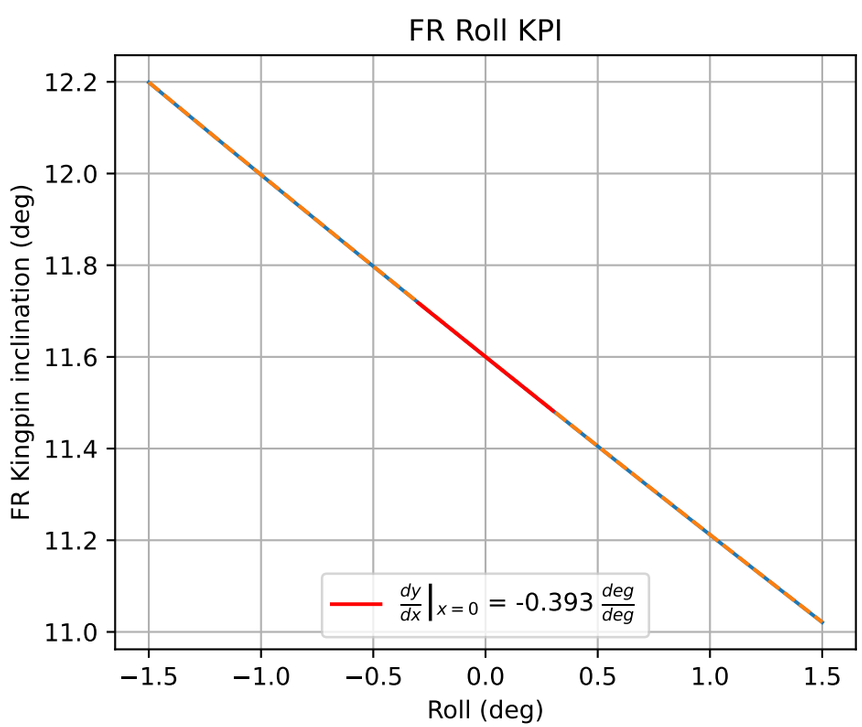
Linear Fit $f(x) = a_1x + a_0$

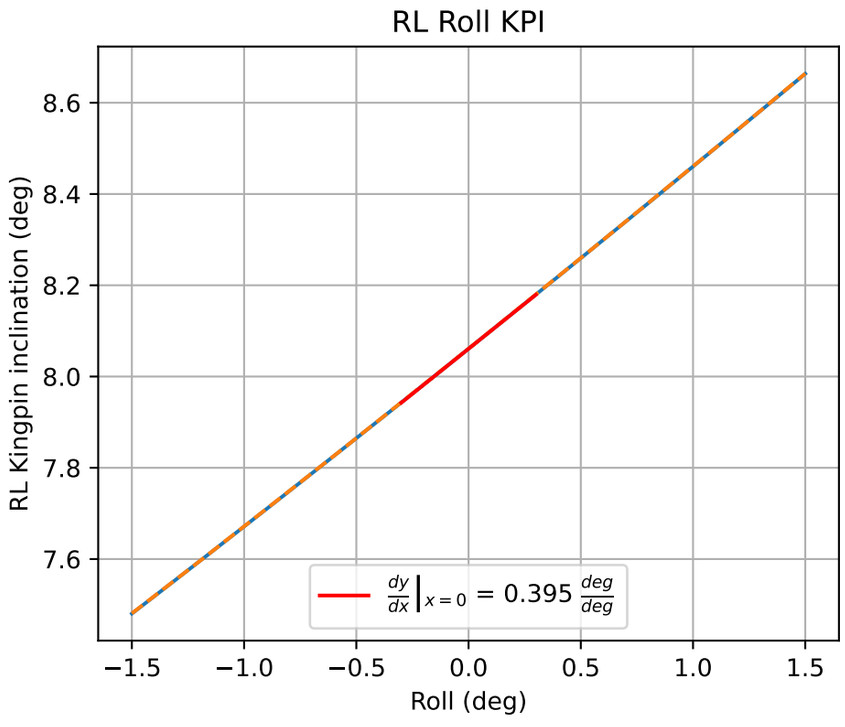
FL	$f(x) = -0.005x + 2.243$
FR	$f(x) = 0.005x + 2.243$
RL	$f(x) = -0.01x + 6.404$
RR	$f(x) = 0.01x + 6.404$

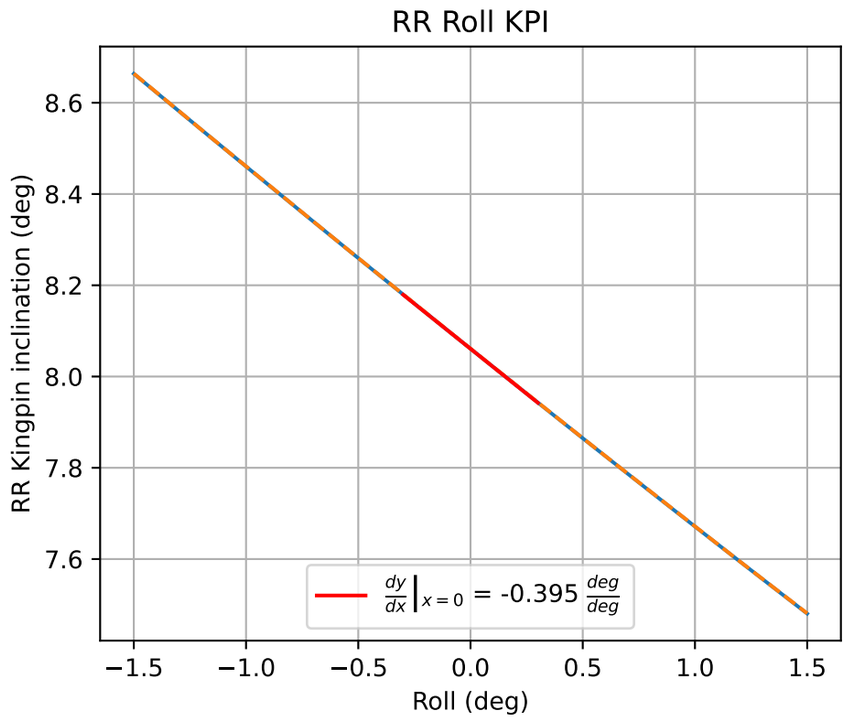
Cubic Fit $f(x) = a_3x^3 + a_2x^2 + a_1x + a_0$

FL	$f(x) = 0.0x^3 + 0.0x^2 + -0.005x + 2.243$
FR	$f(x) = -0.0x^3 + 0.0x^2 + 0.005x + 2.243$
RL	$f(x) = 0.0x^3 + 0.0x^2 + -0.01x + 6.404$
RR	$f(x) = -0.0x^3 + 0.0x^2 + 0.01x + 6.404$







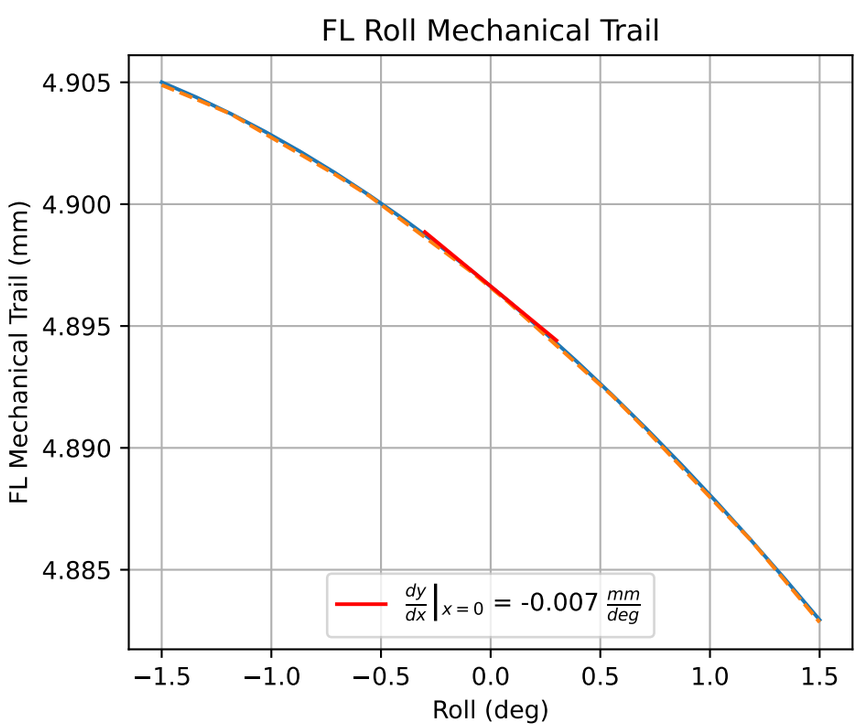


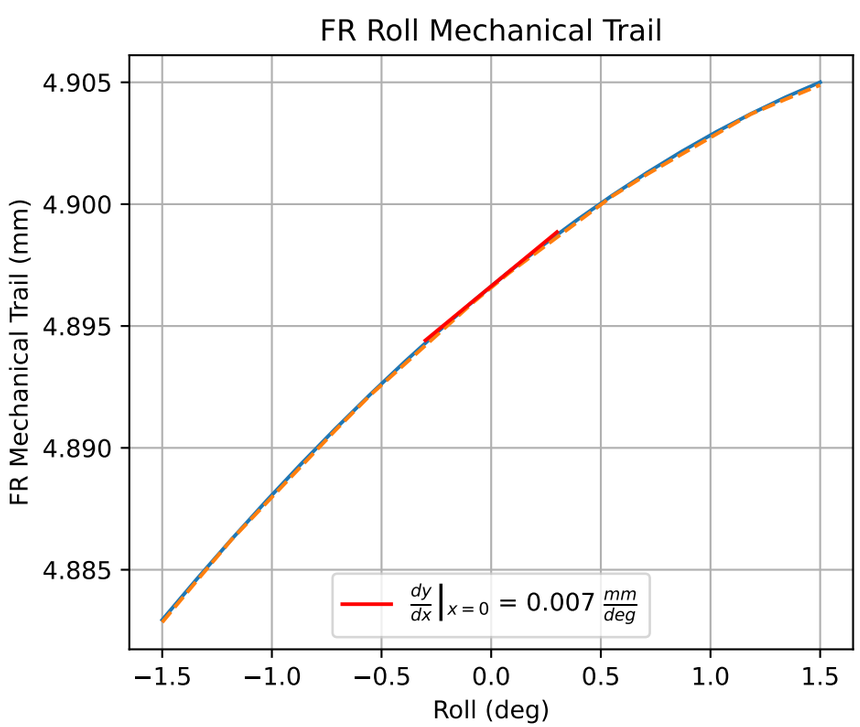
Linear Fit $f(x) = a_1x + a_0$

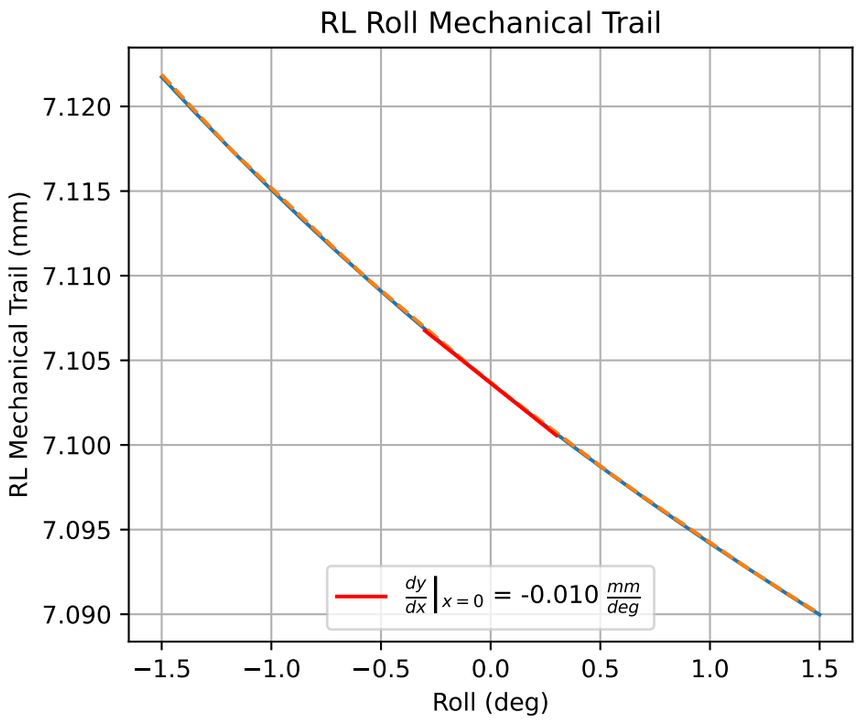
FL	$f(x) = 0.393x + 11.6$
FR	$f(x) = -0.393x + 11.6$
RL	$f(x) = 0.395x + 8.061$
RR	$f(x) = -0.395x + 8.061$

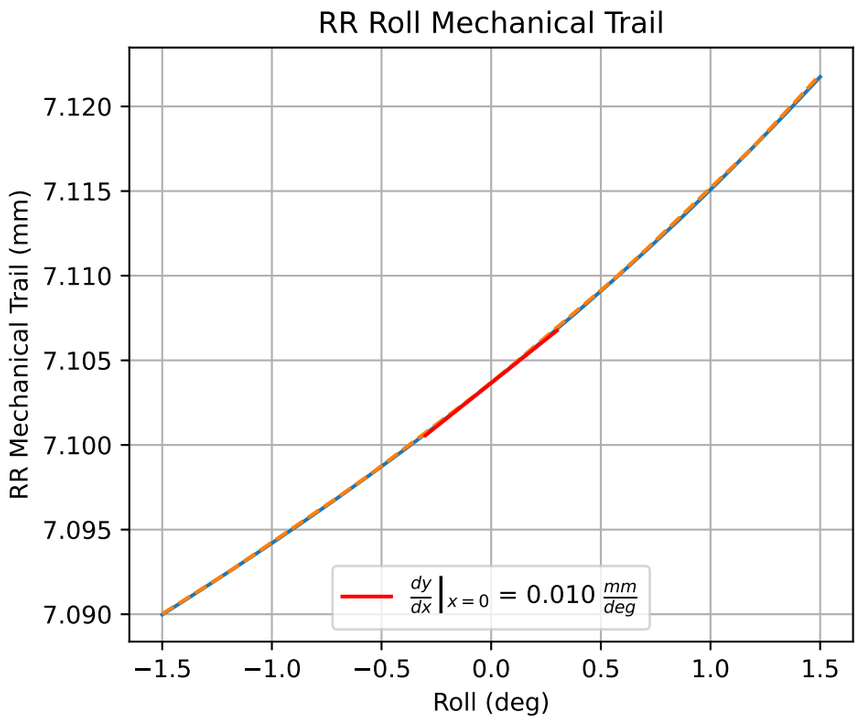
Cubic Fit $f(x) = a_3x^3 + a_2x^2 + a_1x + a_0$

FL	$f(x) = 0.0x^3 + 0.004x^2 + 0.393x + 11.6$
FR	$f(x) = -0.0x^3 + 0.004x^2 + -0.393x + 11.6$
RL	$f(x) = -0.0x^3 + 0.005x^2 + 0.395x + 8.061$
RR	$f(x) = 0.0x^3 + 0.005x^2 + -0.395x + 8.061$







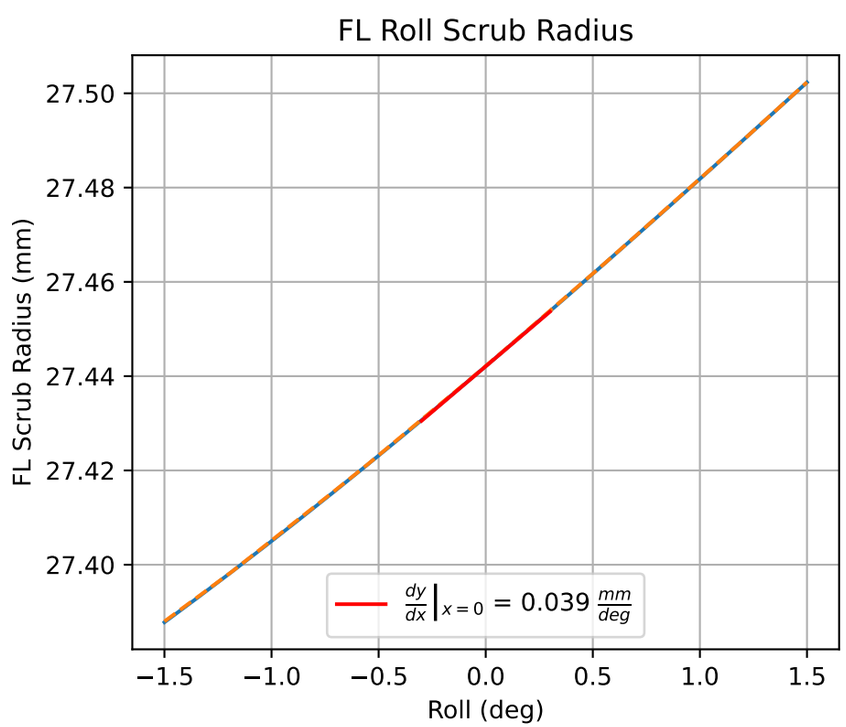


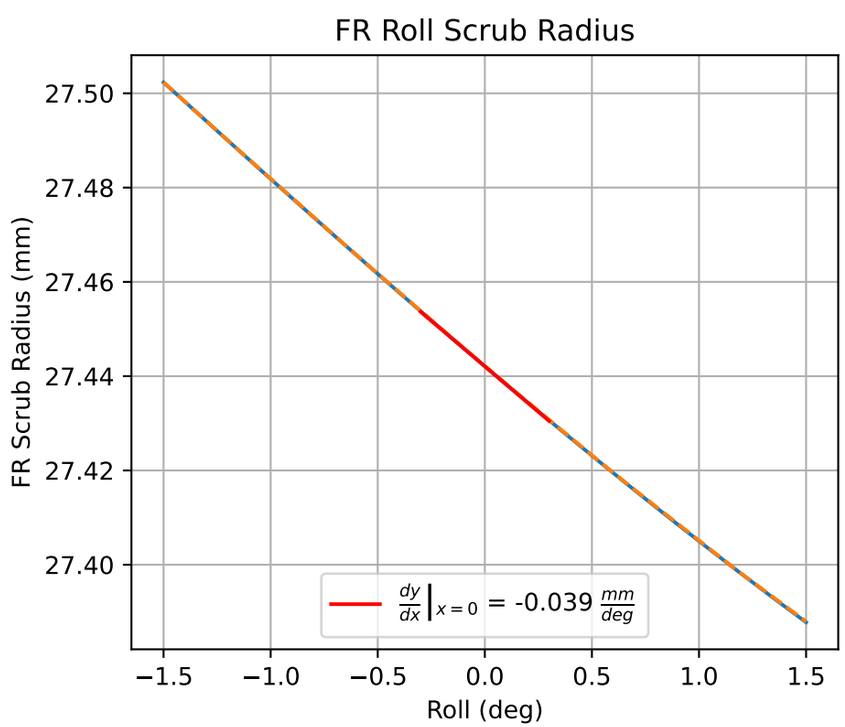
Linear Fit $f(x) = a_1x + a_0$

FL	$f(x) = -0.007x + 4.897$
FR	$f(x) = 0.007x + 4.897$
RL	$f(x) = -0.01x + 7.104$
RR	$f(x) = 0.01x + 7.104$

Cubic Fit $f(x) = a_3x^3 + a_2x^2 + a_1x + a_0$

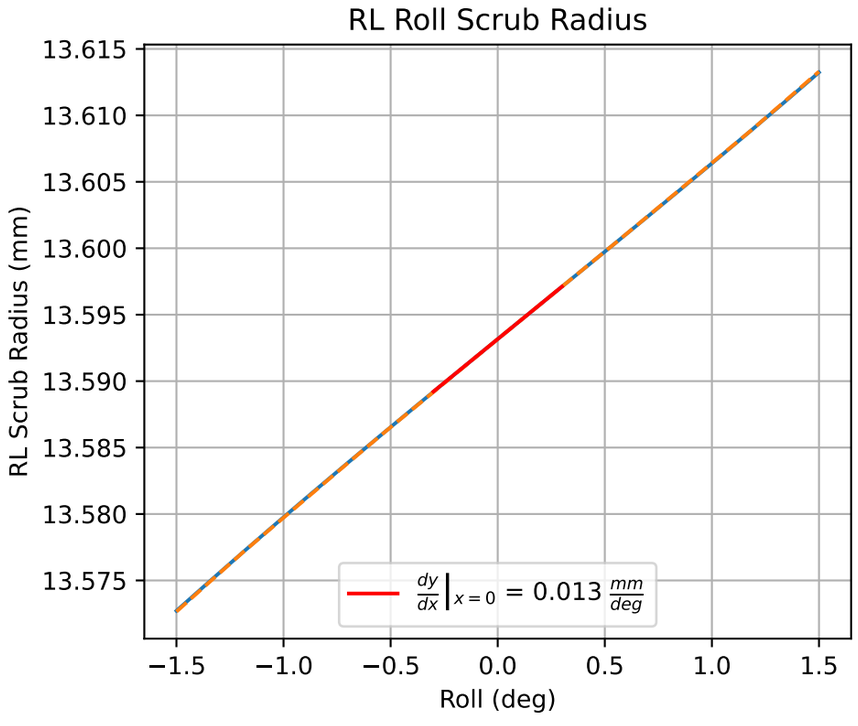
FL	$f(x) = 0.0x^3 + -0.001x^2 + -0.007x + 4.897$
FR	$f(x) = -0.0x^3 + -0.001x^2 + 0.007x + 4.897$
RL	$f(x) = -0.0x^3 + 0.001x^2 + -0.01x + 7.104$
RR	$f(x) = 0.0x^3 + 0.001x^2 + 0.01x + 7.104$

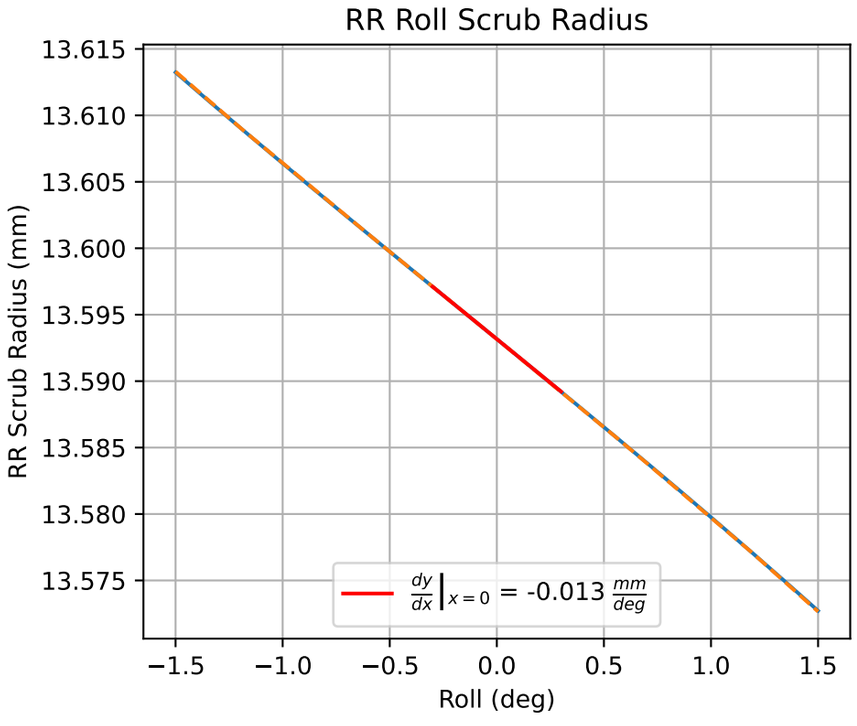




Linear Fit $f(x) = a_1x + a_0$

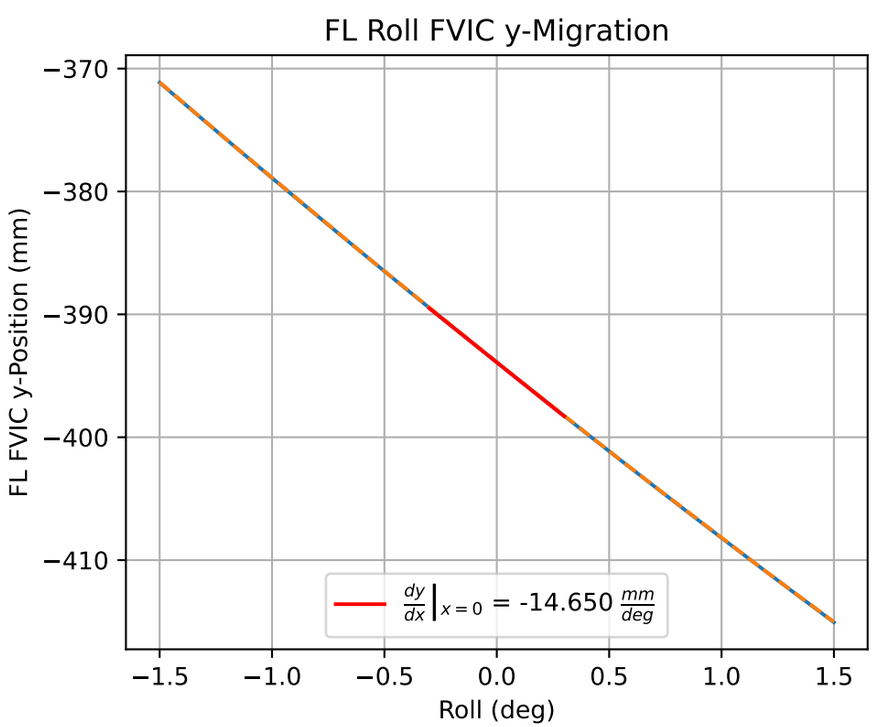
FL	$f(x) = 0.039x + 27.442$
FR	$f(x) = -0.039x + 27.442$
RL	$f(x) = 0.013x + 13.593$
RR	$f(x) = -0.013x + 13.593$

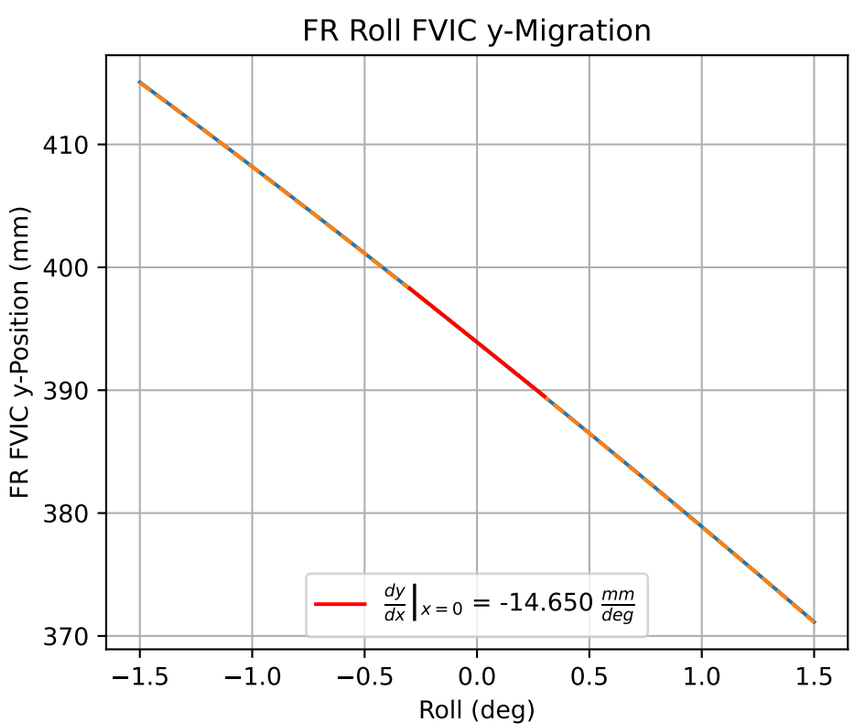


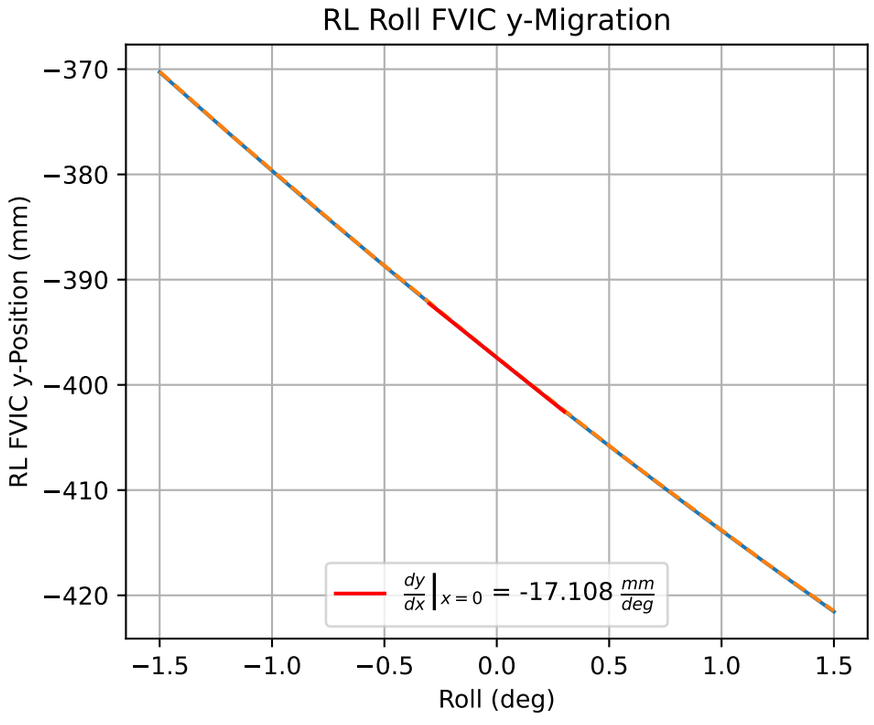


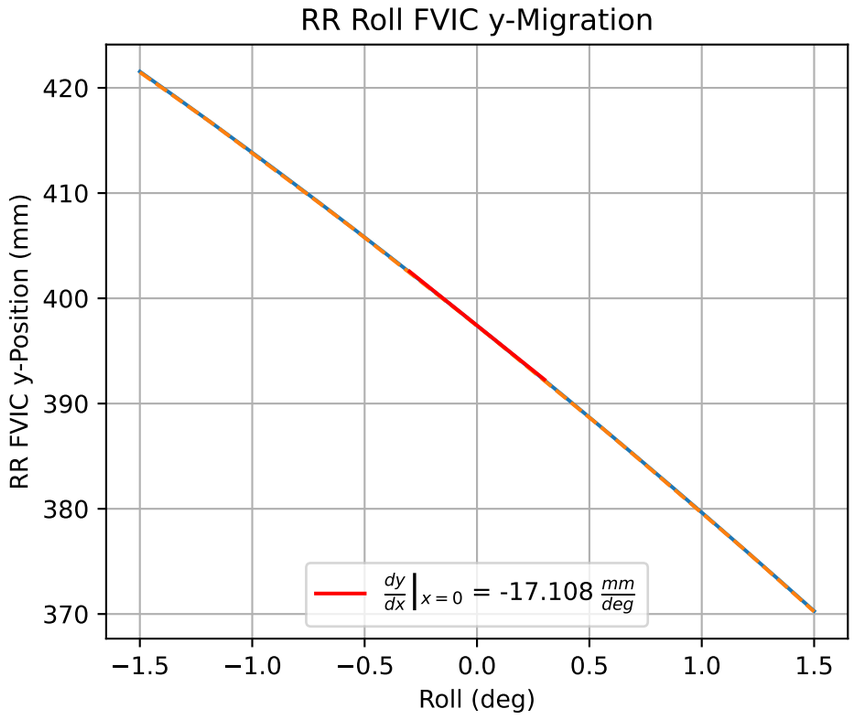
Cubic Fit $f(x) = a_3x^3 + a_2x^2 + a_1x + a_0$

FL	$f(x) = -0.0x^3 + 0.001x^2 + 0.039x + 27.442$
FR	$f(x) = 0.0x^3 + 0.001x^2 + -0.039x + 27.442$
RL	$f(x) = 0.0x^3 + -0.0x^2 + 0.013x + 13.593$
RR	$f(x) = -0.0x^3 + -0.0x^2 + -0.013x + 13.593$







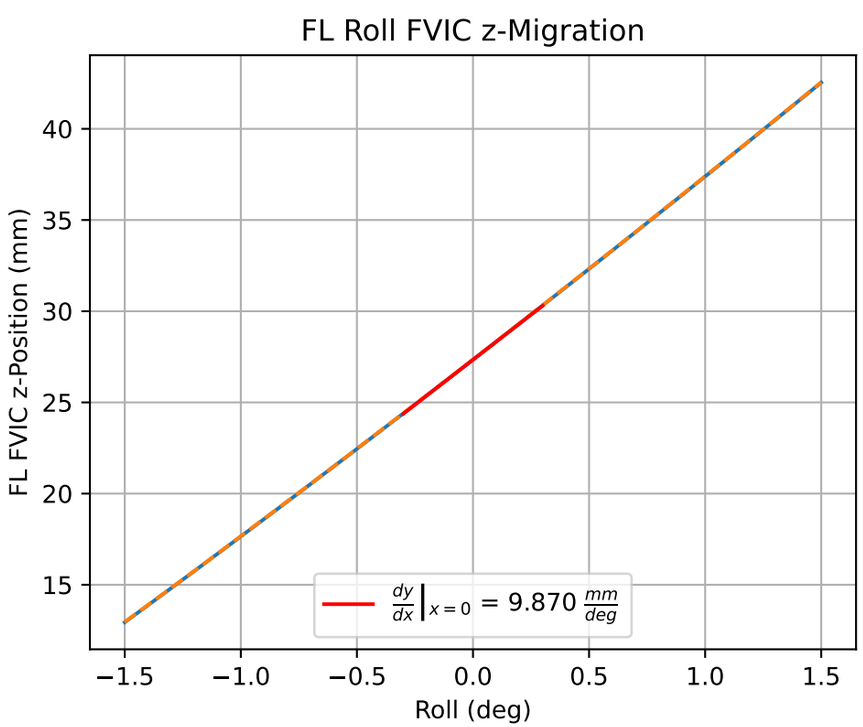


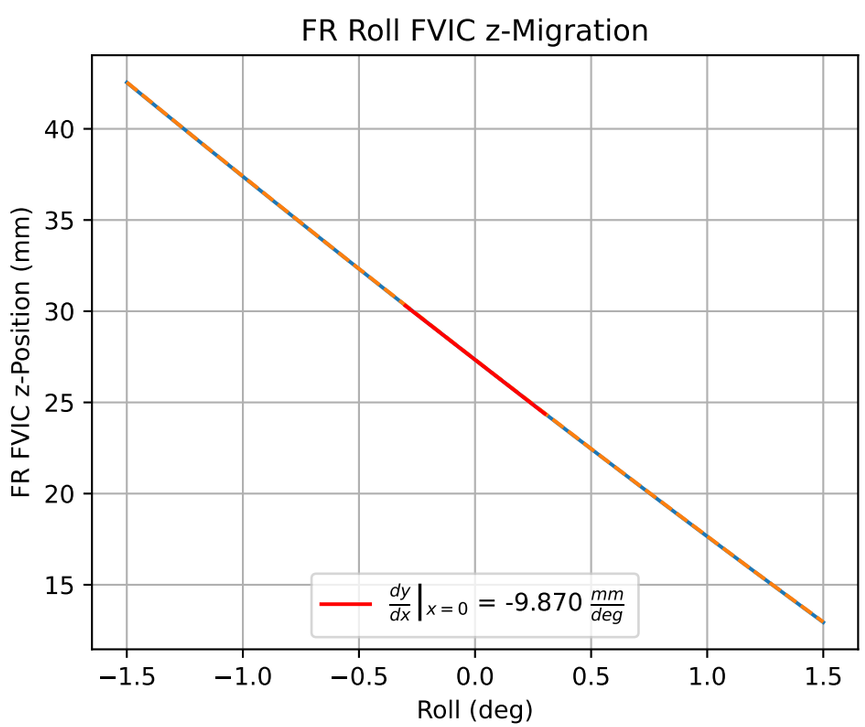
Linear Fit $f(x) = a_1x + a_0$

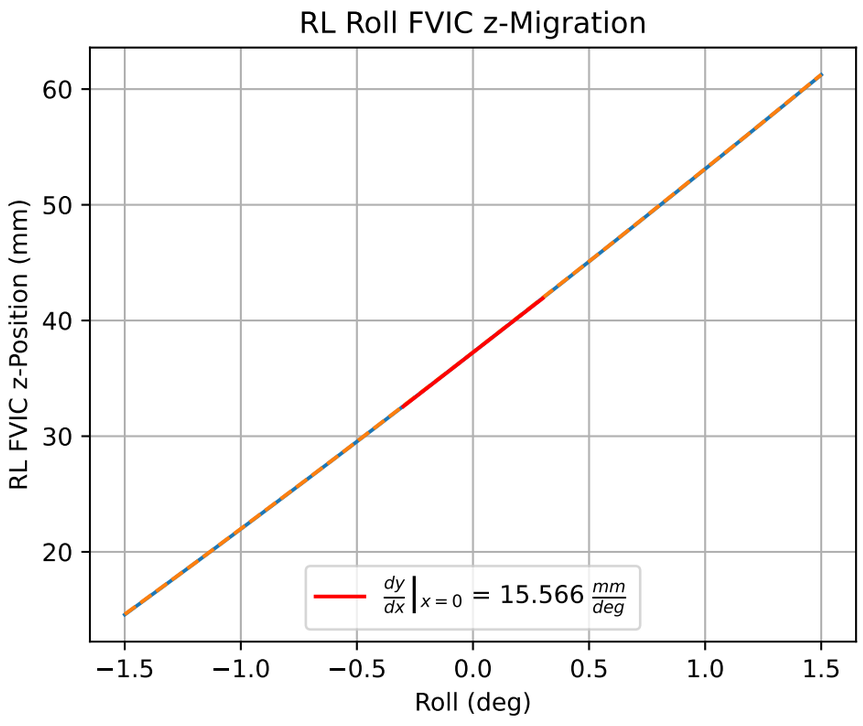
FL	$f(x) = -14.65x + -393.907$
FR	$f(x) = -14.65x + 393.907$
RL	$f(x) = -17.108x + -397.417$
RR	$f(x) = -17.108x + 397.417$

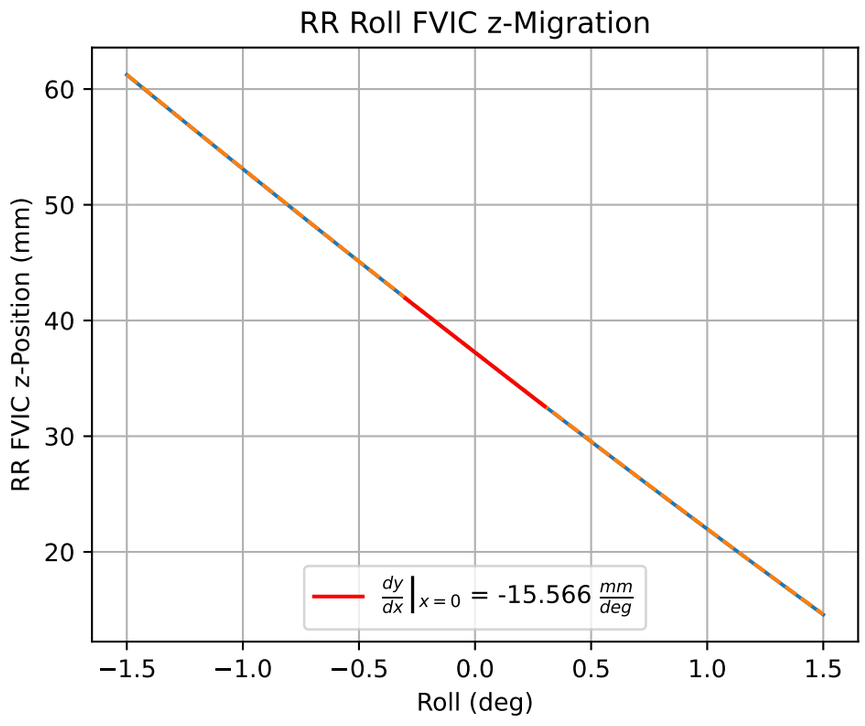
Cubic Fit $f(x) = a_3x^3 + a_2x^2 + a_1x + a_0$

FL	$f(x) = 0.005x^3 + 0.358x^2 + -14.65x + -393.907$
FR	$f(x) = 0.005x^3 + -0.358x^2 + -14.65x + 393.907$
RL	$f(x) = 0.009x^3 + 0.667x^2 + -17.108x + -397.417$
RR	$f(x) = 0.009x^3 + -0.667x^2 + -17.108x + 397.417$









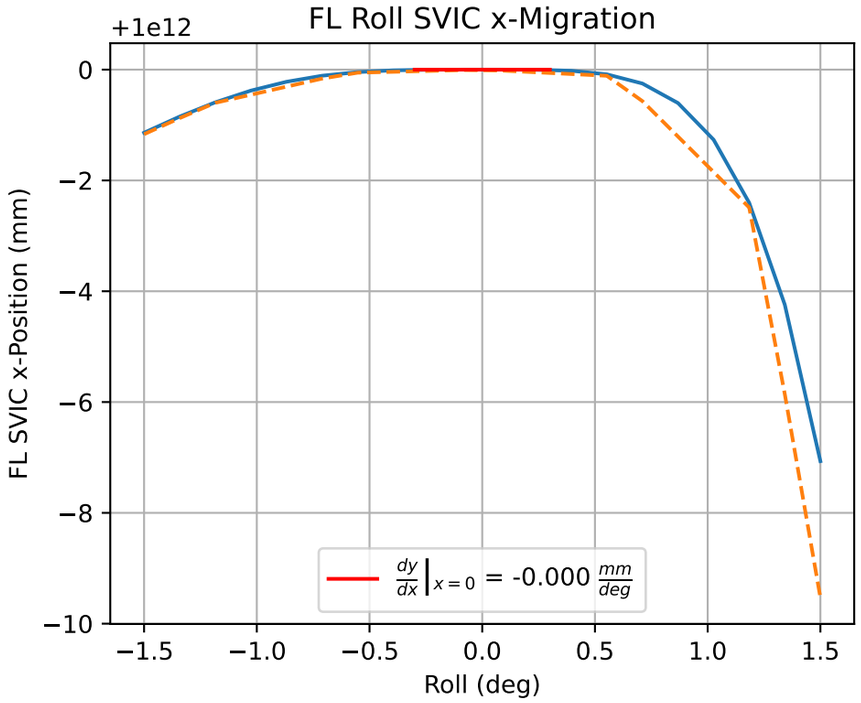
Full Model
FMU

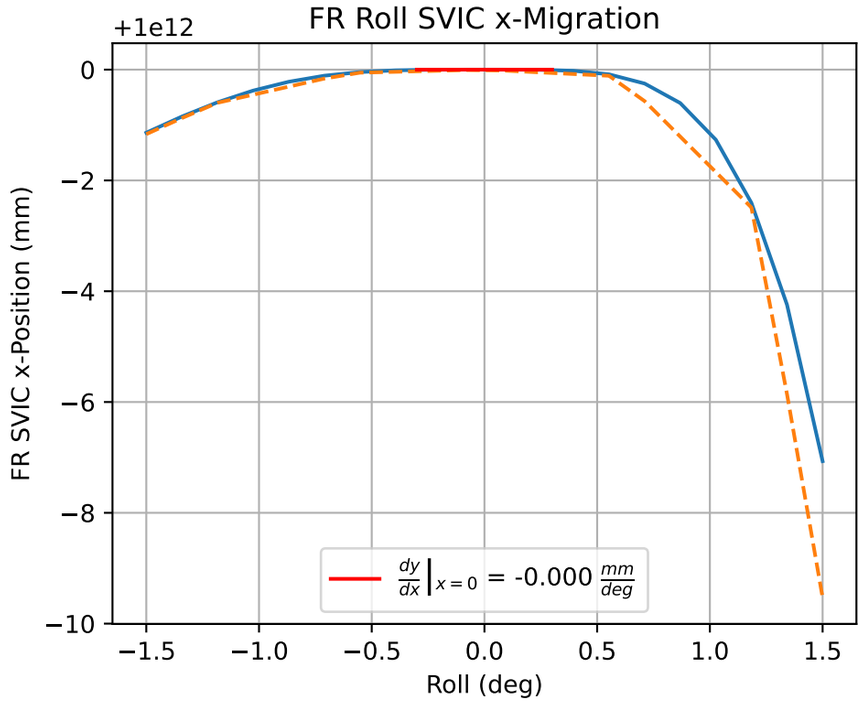
Linear Fit $f(x) = a_1x + a_0$

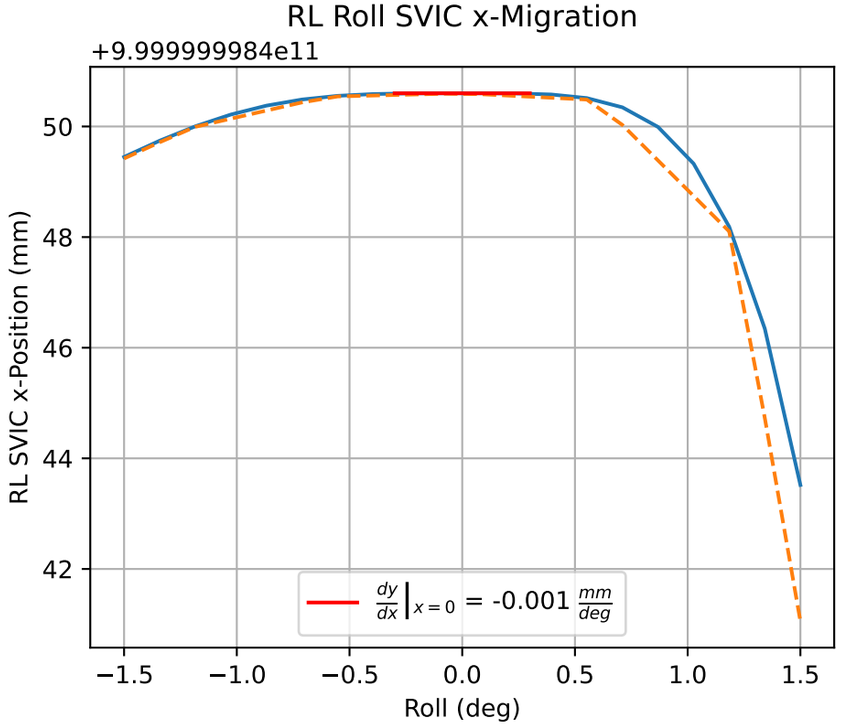
FL	$f(x) = 9.87x + 27.34$
FR	$f(x) = -9.87x + 27.34$
RL	$f(x) = 15.566x + 37.239$
RR	$f(x) = -15.566x + 37.239$

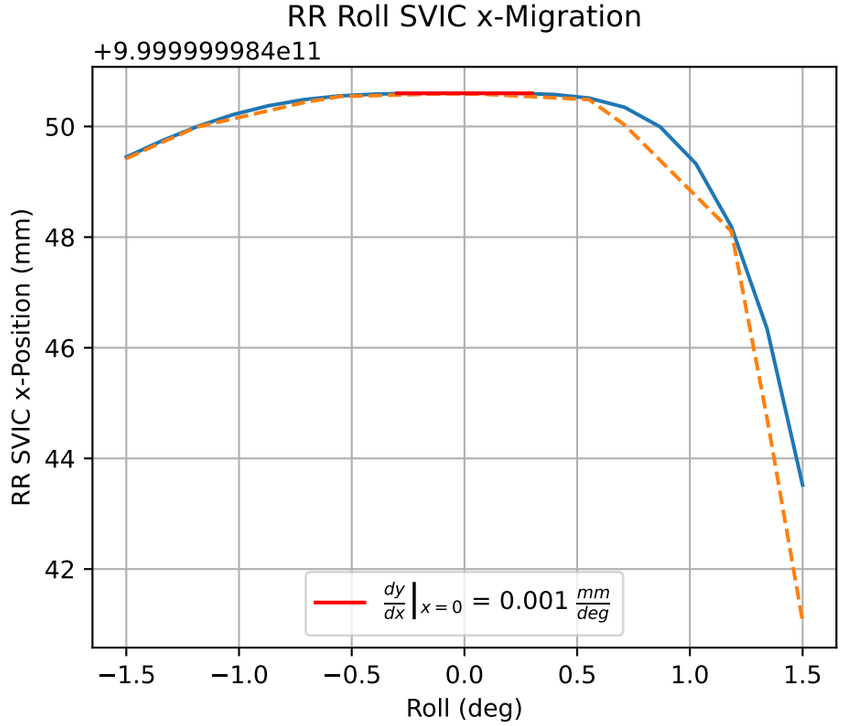
Cubic Fit $f(x) = a_3x^3 + a_2x^2 + a_1x + a_0$

FL	$f(x) = -0.002x^3 + 0.178x^2 + 9.87x + 27.34$
FR	$f(x) = 0.002x^3 + 0.178x^2 + -9.87x + 27.34$
RL	$f(x) = -0.006x^3 + 0.296x^2 + 15.566x + 37.239$
RR	$f(x) = 0.007x^3 + 0.296x^2 + -15.566x + 37.239$







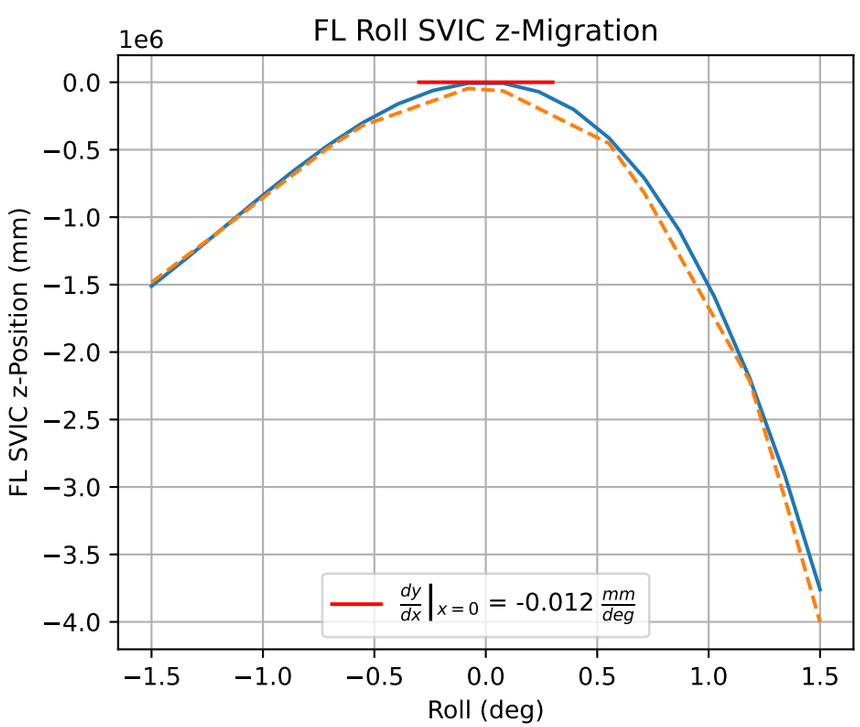


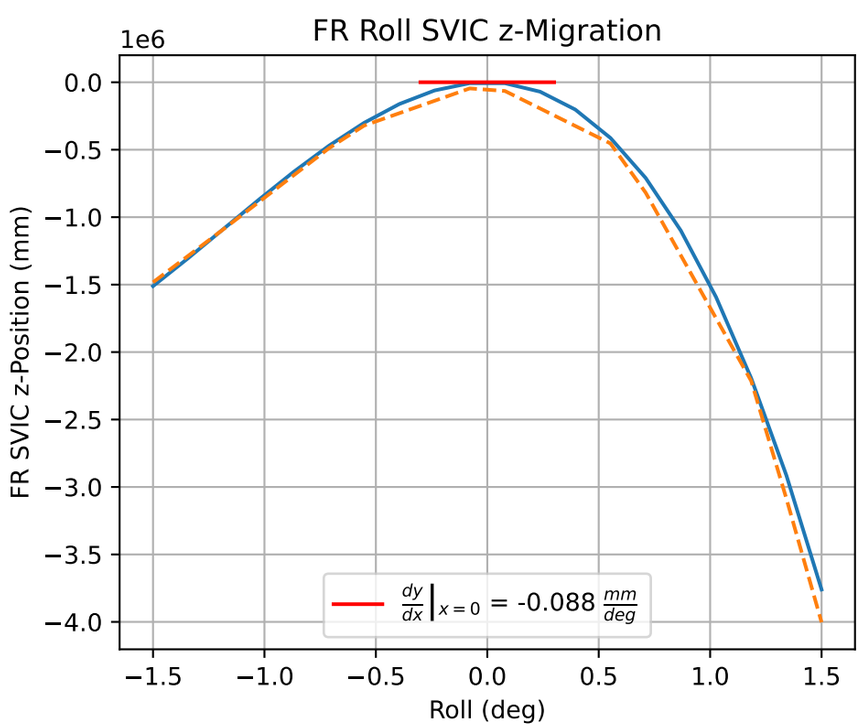
Linear Fit $f(x) = a_1x + a_0$

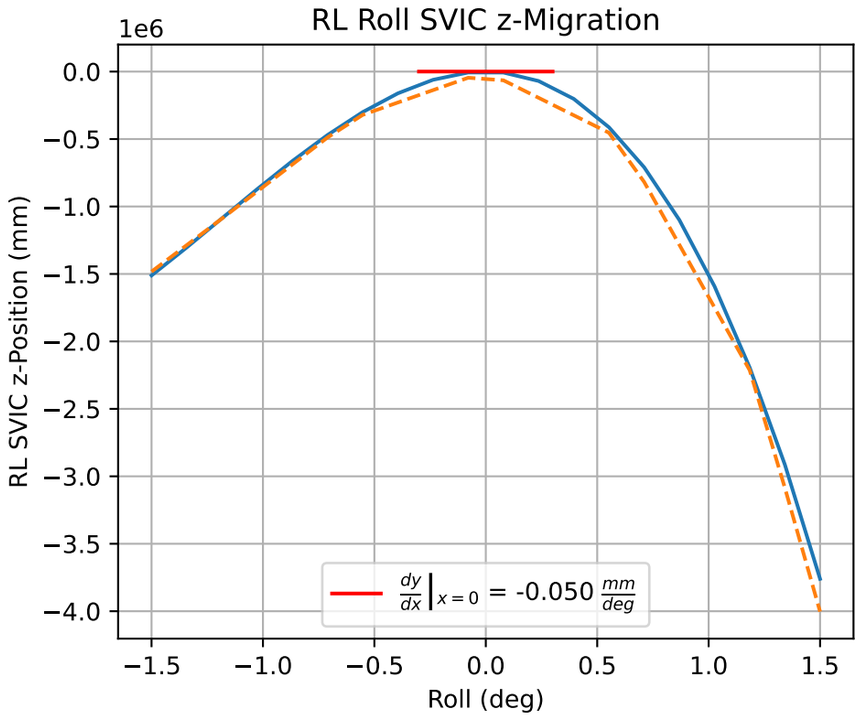
FL	$f(x) = -0.0x + 1.000e+12$
FR	$f(x) = -0.0x + 1.000e+12$
RL	$f(x) = -0.001x + 1.000e+12$
RR	$f(x) = 0.001x + 1.000e+12$

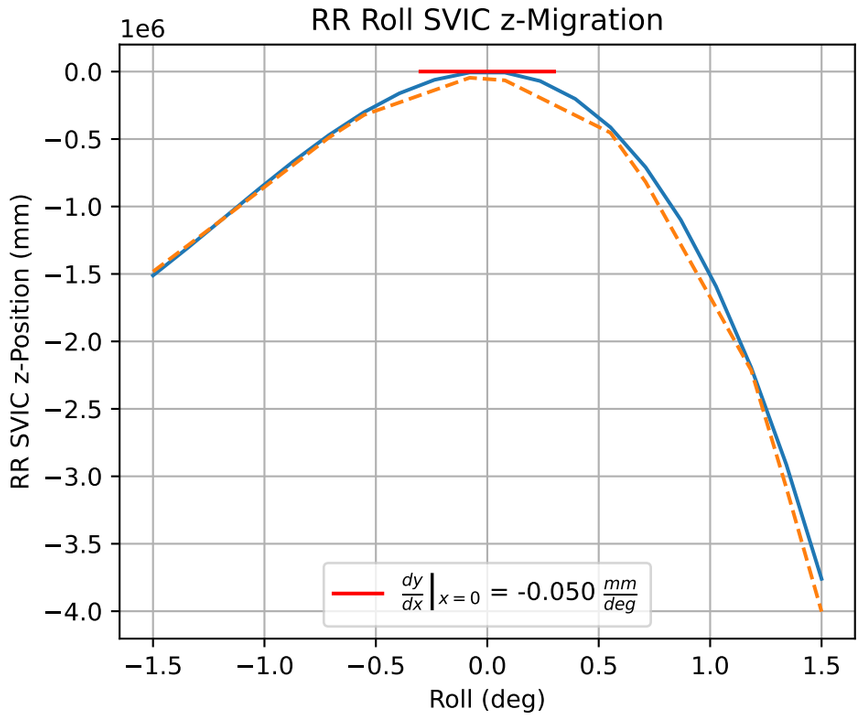
Cubic Fit $f(x) = a_3x^3 + a_2x^2 + a_1x + a_0$

FL	$f(x) = -1.062x^3 + -1.689x^2 + 0.555x + 1.0e+12$
FR	$f(x) = -1.062x^3 + -1.689x^2 + 0.555x + 1.0e+12$
RL	$f(x) = -1.062x^3 + -1.695x^2 + 0.555x + 1.0e+12$
RR	$f(x) = -1.062x^3 + -1.695x^2 + 0.556x + 1.0e+12$







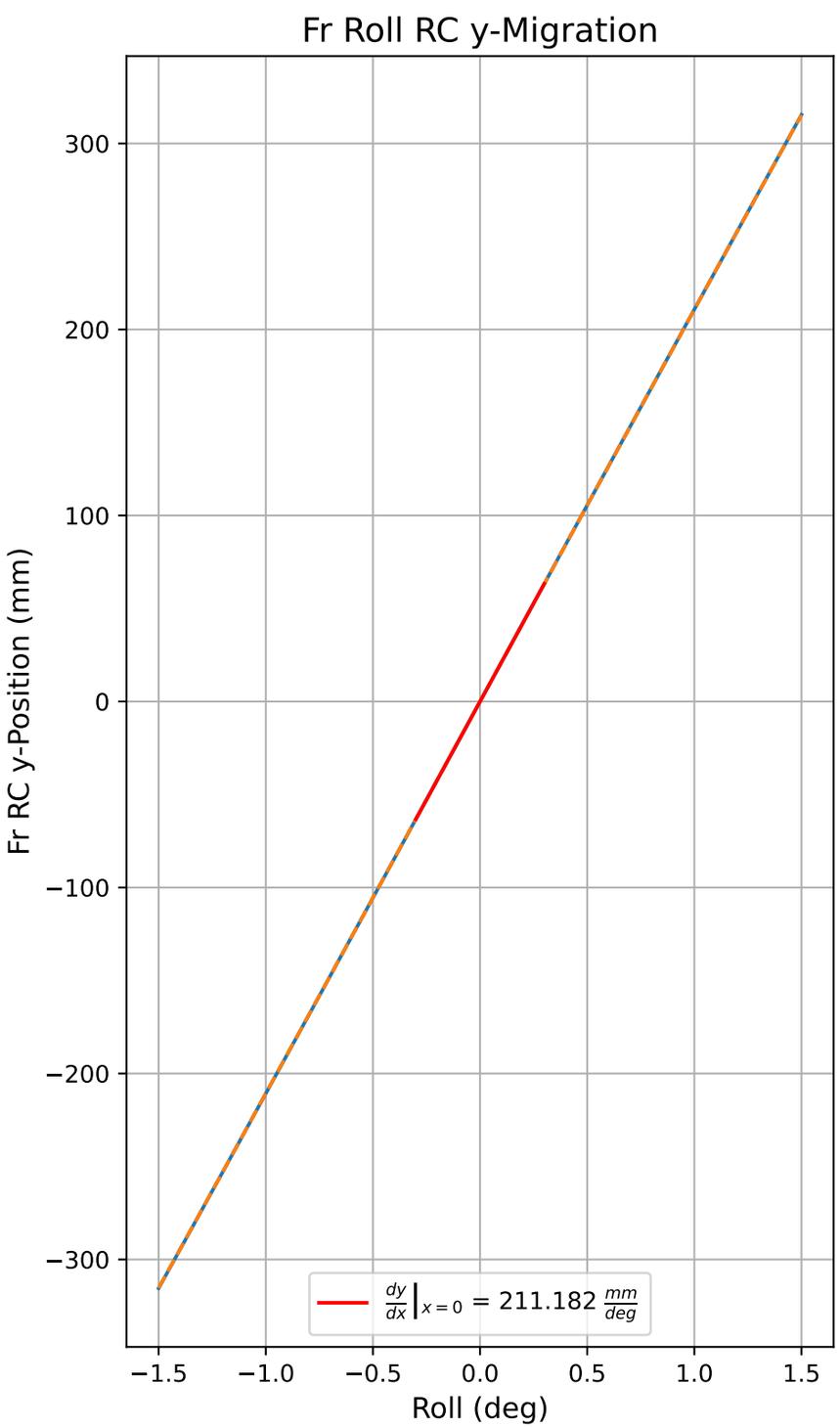


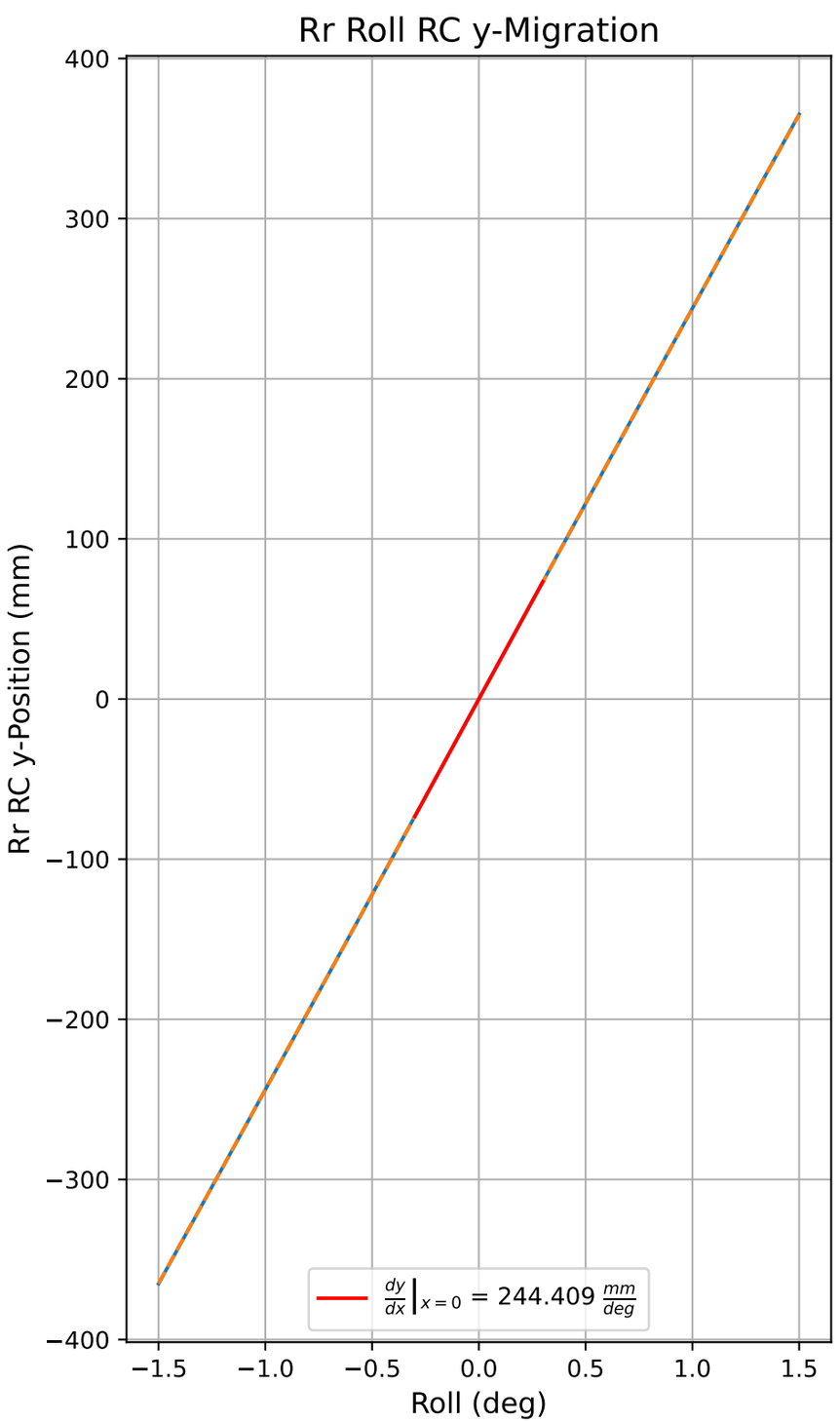
Linear Fit $f(x) = a_1x + a_0$

FL	$f(x) = -0.012x + 203.231$
FR	$f(x) = -0.088x + 203.231$
RL	$f(x) = -0.05x + 203.262$
RR	$f(x) = -0.05x + 203.262$

Cubic Fit $f(x) = a_3x^3 + a_2x^2 + a_1x + a_0$

FL	$f(x) = -333350.204x^3 + -1171318.784x^2 + 473.537x + 1.0$
FR	$f(x) = -333350.204x^3 + -1171318.784x^2 + 473.462x + 1.0$
RL	$f(x) = -333350.204x^3 + -1171318.784x^2 + 473.499x + 1.0$
RR	$f(x) = -333350.203x^3 + -1171318.784x^2 + 473.499x + 1.0$



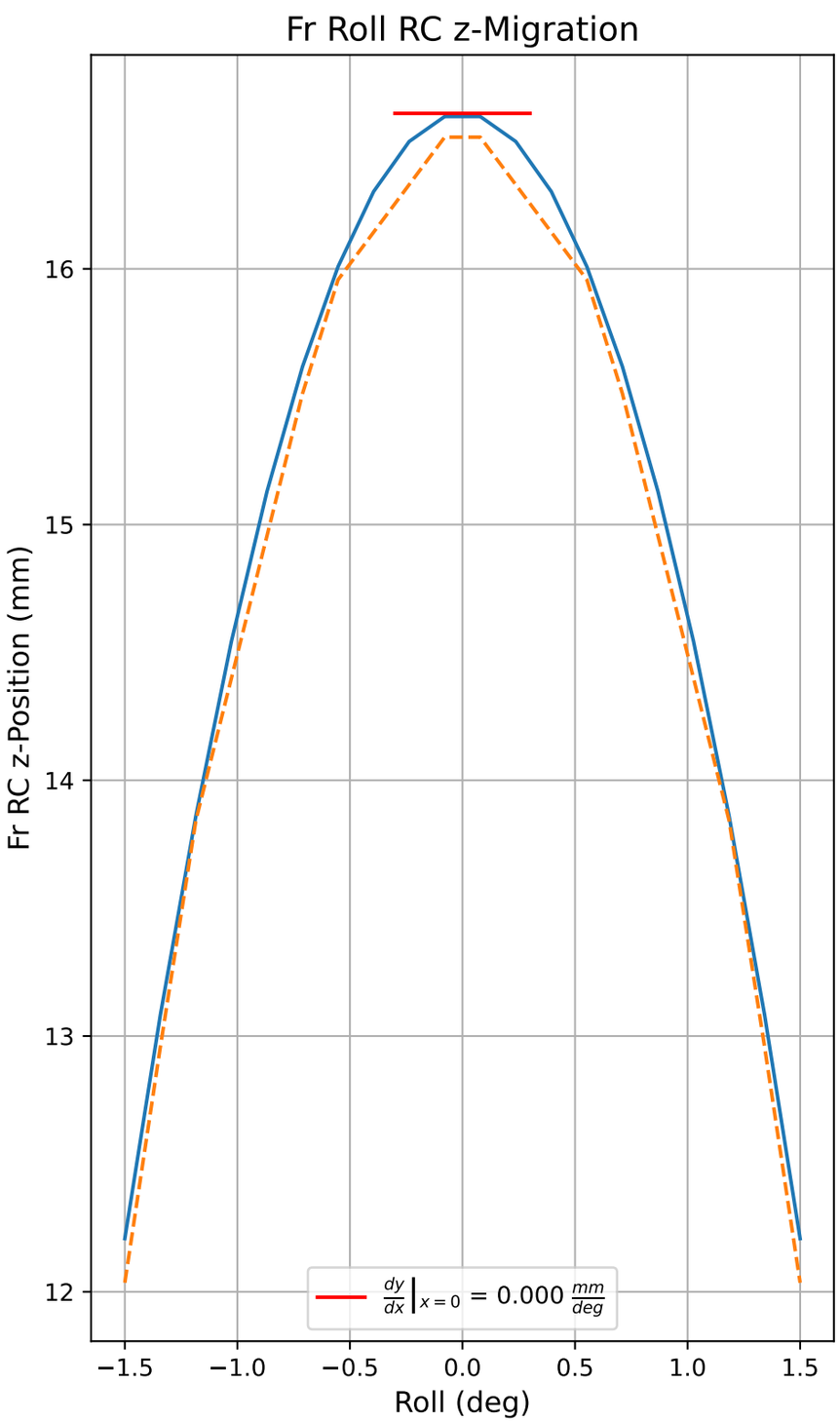


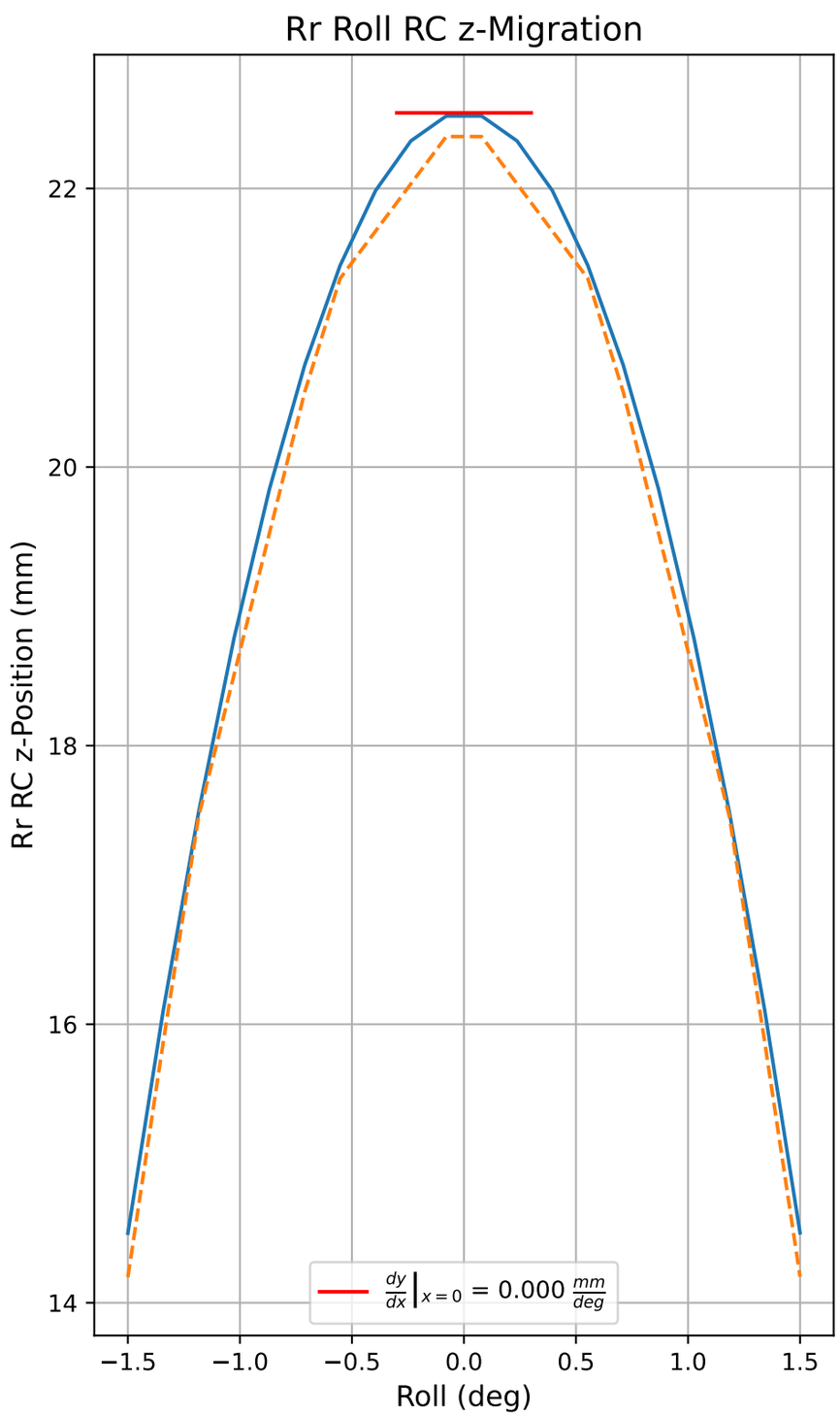
Linear Fit $f(x) = a_1x + a_0$

Fr	$f(x) = 211.182x + -0.0$
Rr	$f(x) = 244.409x + 0.0$

Cubic Fit $f(x) = a_3x^3 + a_2x^2 + a_1x + a_0$

Fr	$f(x) = -0.387x^3 + -0.0x^2 + 211.182x + 0.0$
Rr	$f(x) = -0.442x^3 + -0.0x^2 + 244.409x + 0.0$



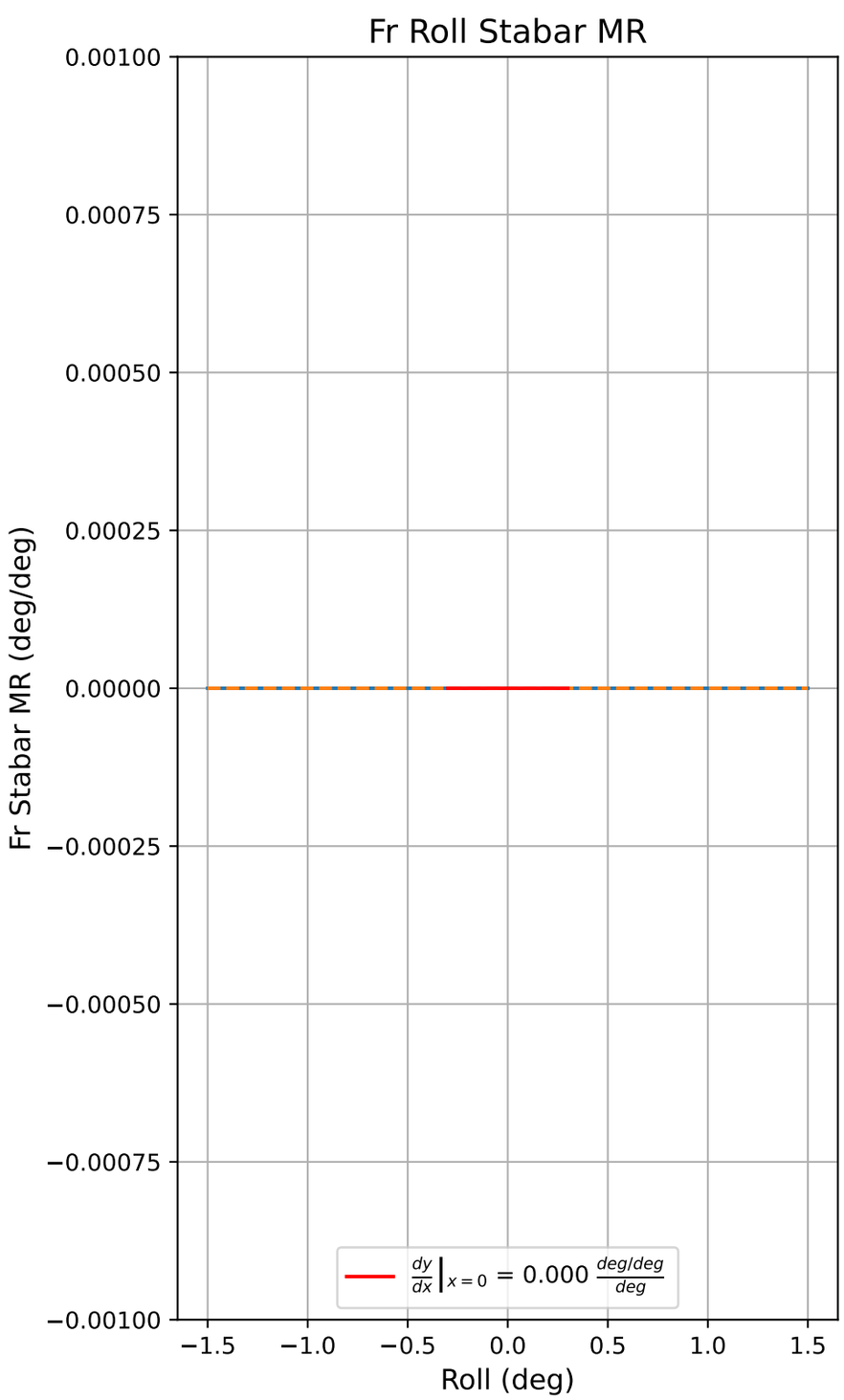


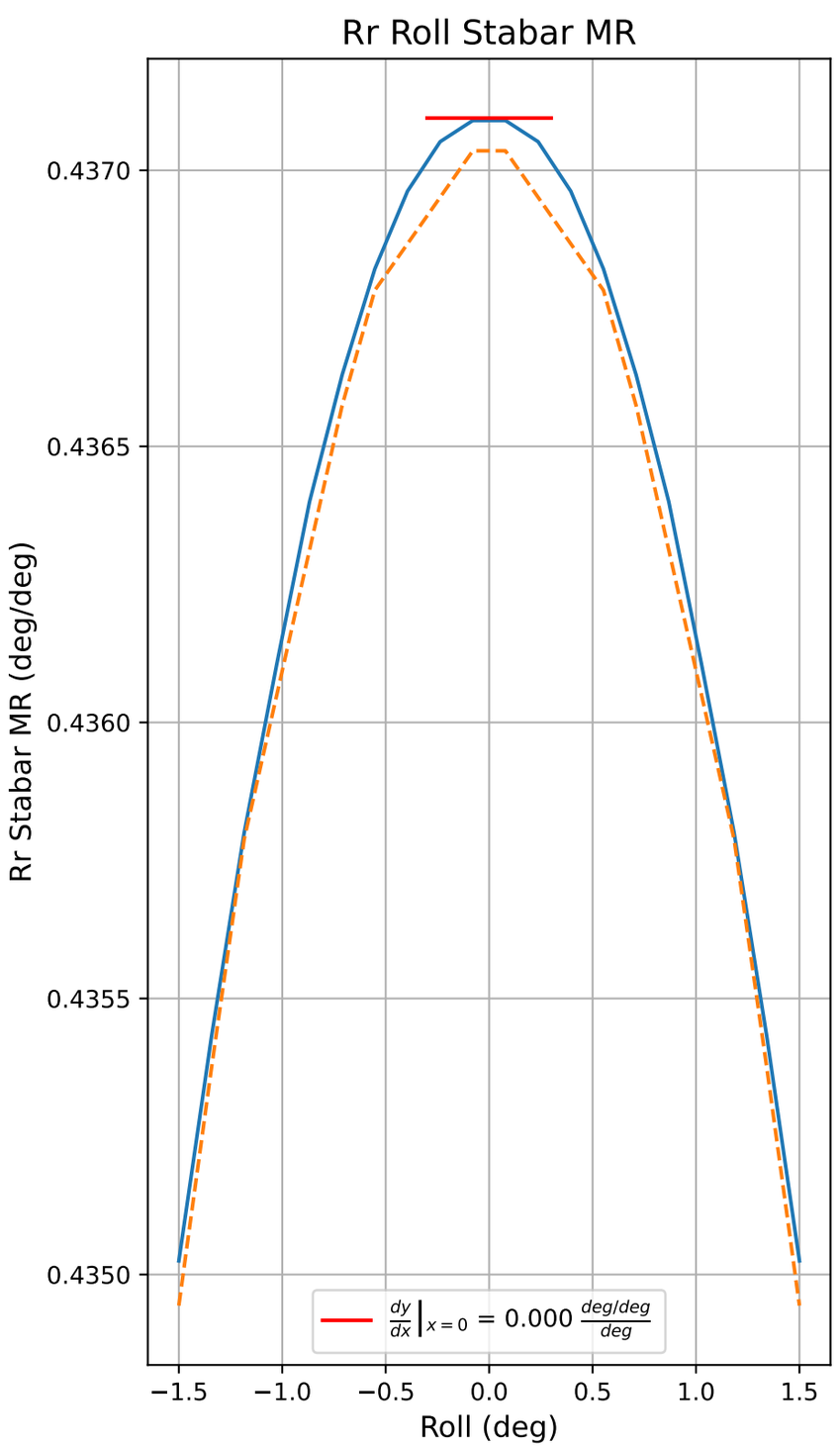
Linear Fit $f(x) = a_1x + a_0$

Fr	$f(x) = 0.0x + 16.608$
Rr	$f(x) = 0.0x + 22.543$

Cubic Fit $f(x) = a_3x^3 + a_2x^2 + a_1x + a_0$

Fr	$f(x) = 0.0x^3 + -1.956x^2 + -0.0x + 16.606$
Rr	$f(x) = 0.001x^3 + -3.575x^2 + -0.0x + 22.54$



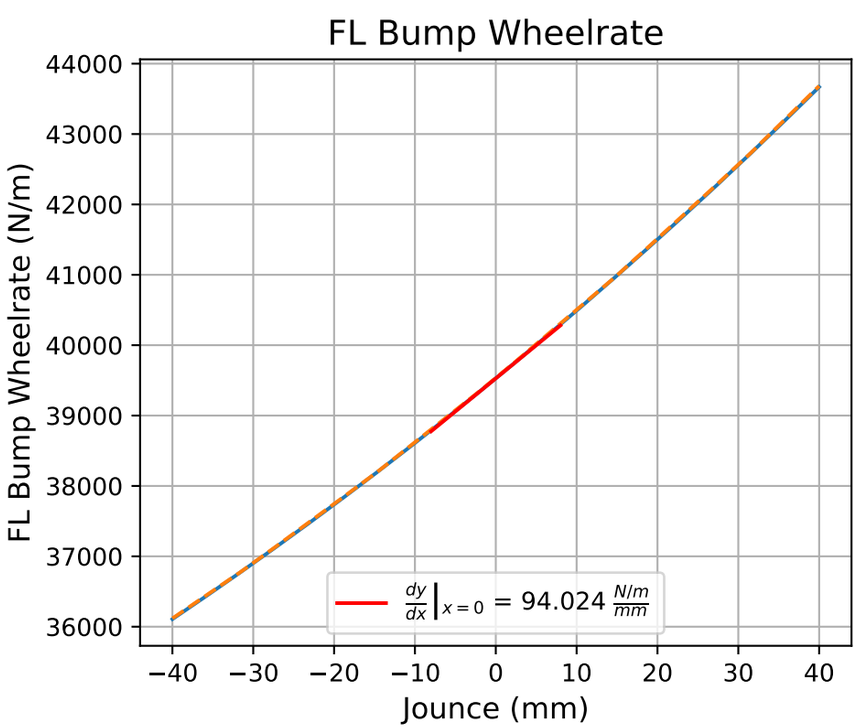


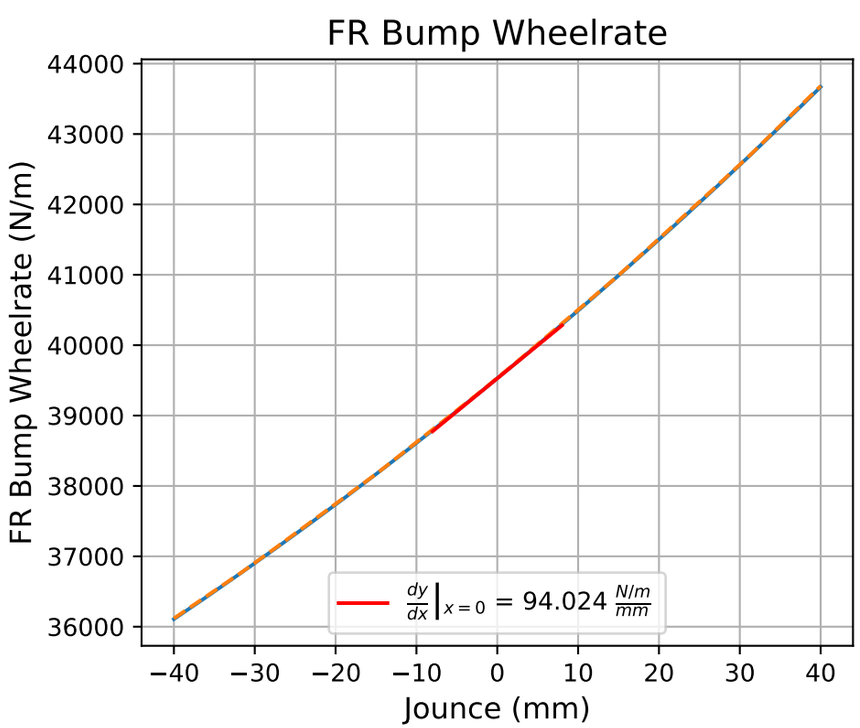
Linear Fit $f(x) = a_1x + a_0$

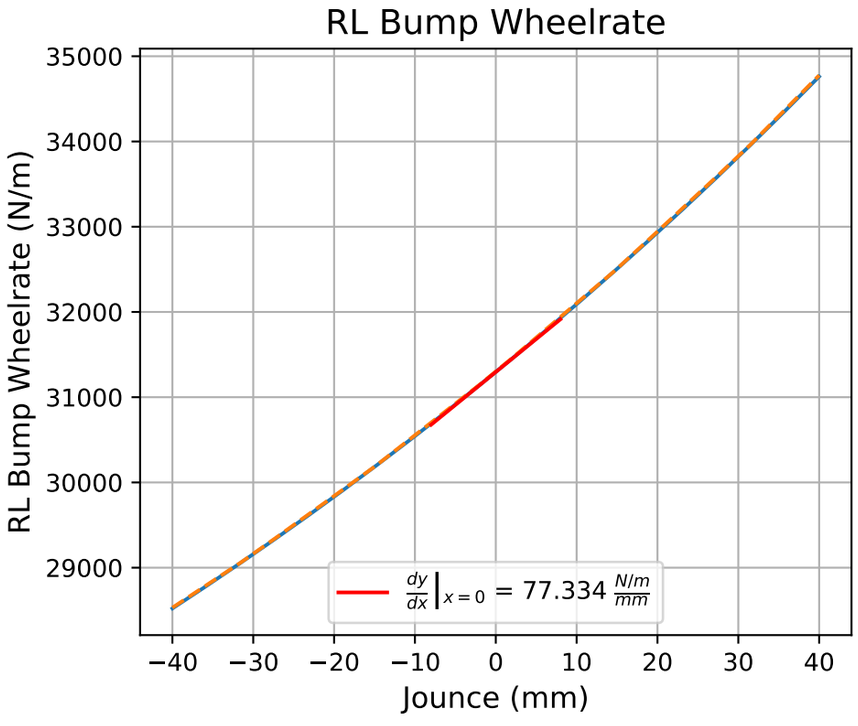
Fr	$f(x) = 0.0x + 0.0$
Rr	$f(x) = 0.0x + 0.437$

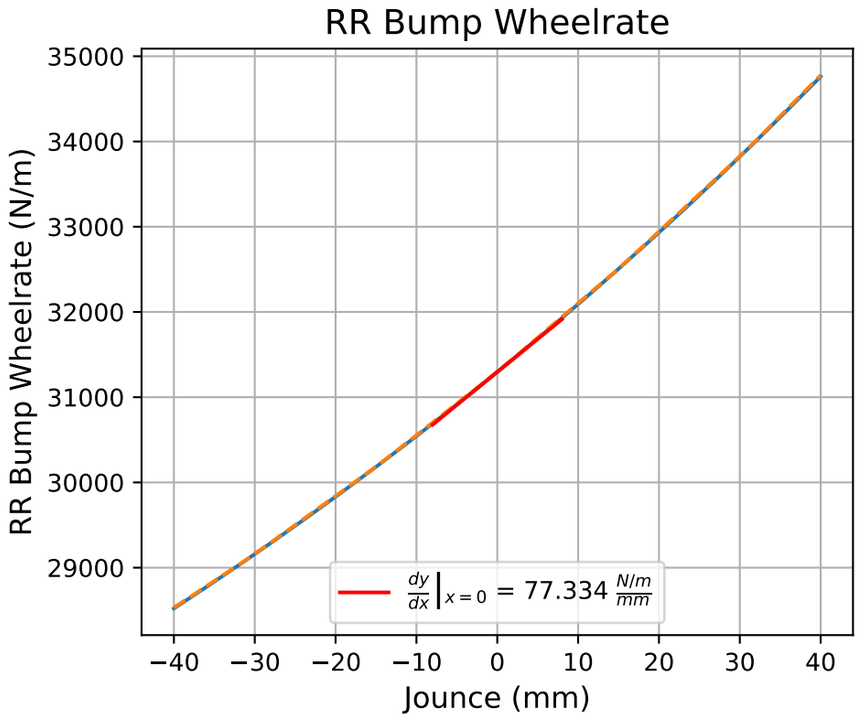
Cubic Fit $f(x) = a_3x^3 + a_2x^2 + a_1x + a_0$

Fr	$f(x) = 0.0x^3 + 0.0x^2 + 0.0x + 0.0$
Rr	$f(x) = 0.0x^3 + -0.001x^2 + -0.0x + 0.437$







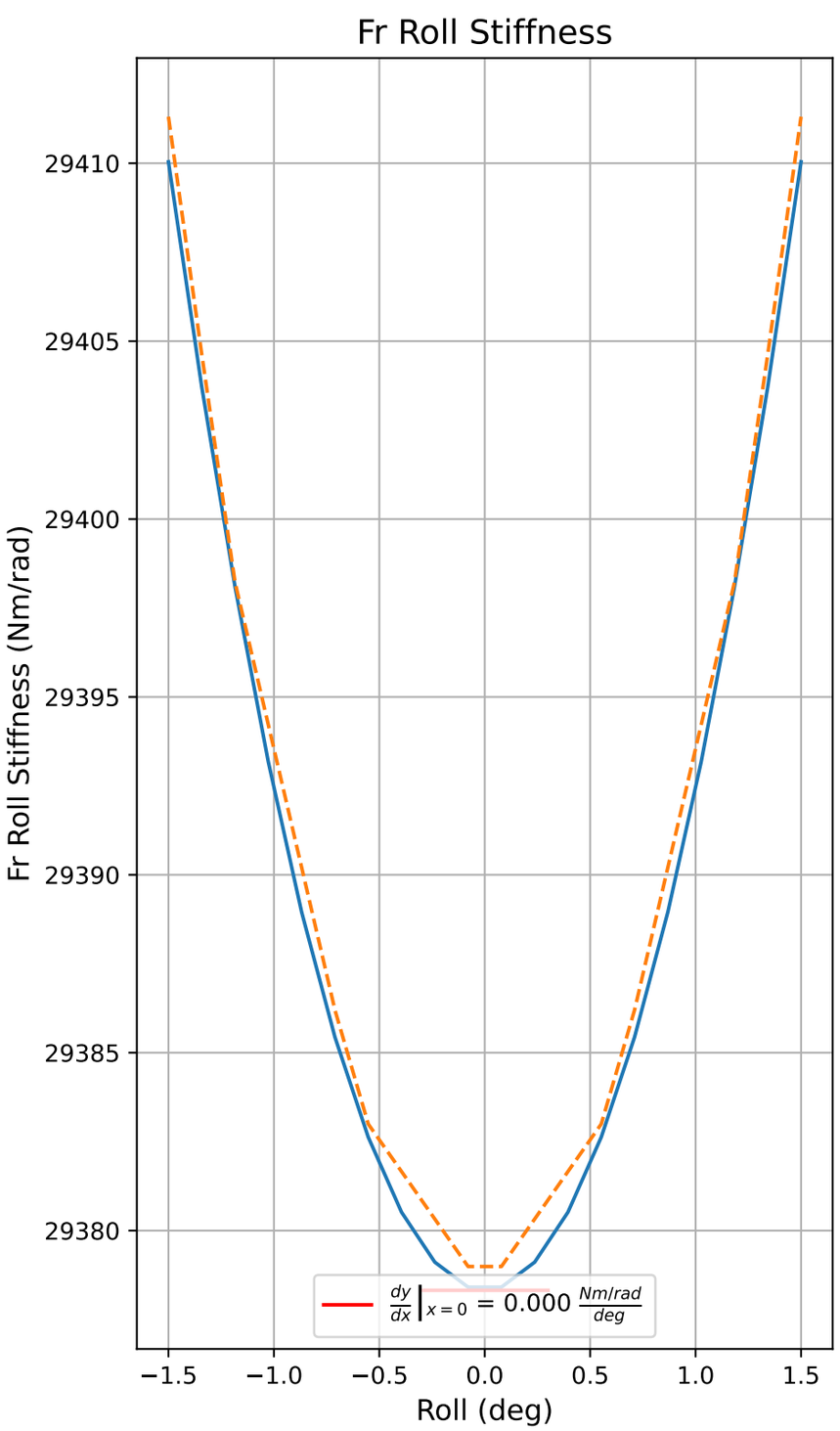


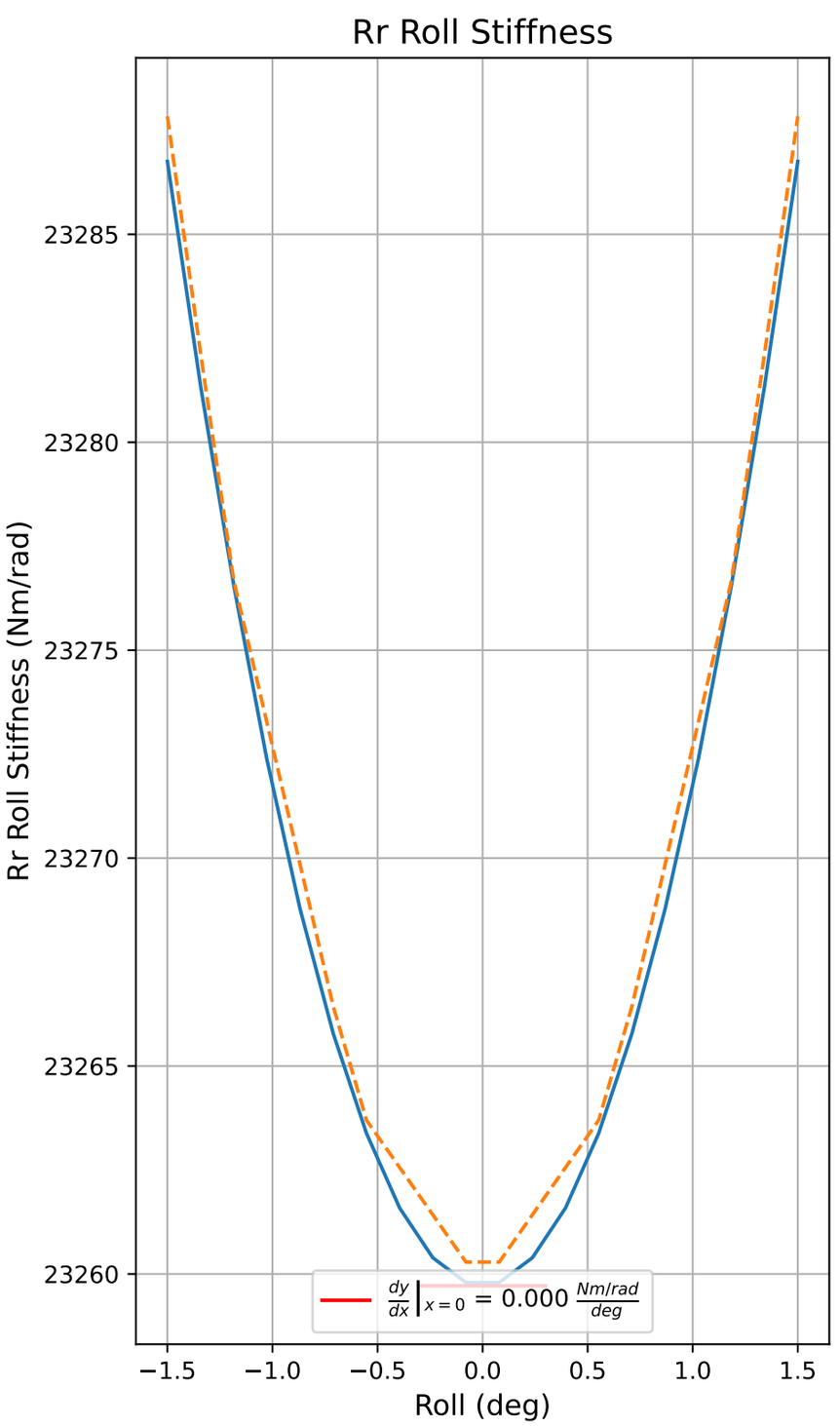
Linear Fit $f(x) = a_1x + a_0$

FL	$f(x) = 94.024x + 3.953e+04$
FR	$f(x) = 94.024x + 3.953e+04$
RL	$f(x) = 77.334x + 3.130e+04$
RR	$f(x) = 77.334x + 3.130e+04$

Cubic Fit $f(x) = a_3x^3 + a_2x^2 + a_1x + a_0$

FL	$f(x) = 0.0x^3 + 0.225x^2 + 94.027x + 4.0e+04$
FR	$f(x) = 0.0x^3 + 0.225x^2 + 94.027x + 4.0e+04$
RL	$f(x) = 0.0x^3 + 0.216x^2 + 77.334x + 3.1e+04$
RR	$f(x) = 0.0x^3 + 0.216x^2 + 77.334x + 3.1e+04$





Linear Fit $f(x) = a_1x + a_0$

Fr	$f(x) = 0.0x + 29378.323$
Rr	$f(x) = 0.0x + 23259.717$

Cubic Fit $f(x) = a_3x^3 + a_2x^2 + a_1x + a_0$

Fr	$f(x) = 0.0x^3 + 14.096x^2 + -0.0x + 29378.323$
Rr	$f(x) = -0.0x^3 + 12.015x^2 + -0.0x + 23259.715$