

TESLA data

Genfit Utilities



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[XY:=f1 X:=col(XY, 2) Y:=col(XY, 1)]
XY:=augment(X, Y)
n:=rows(XY)
data:=plotG(X, Y, ".", 12, "black")

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$$\begin{bmatrix} 0.033 \\ 1 \\ 0.23 \end{bmatrix}$$

$$Ug := -X_1$$

$$f(x, \beta) := \left(\beta_1 \cdot x \cdot \ln \left(1 + \exp \left(\frac{Ug}{x} \right) \right) \right)^{\beta_2} + \beta_3$$

model function

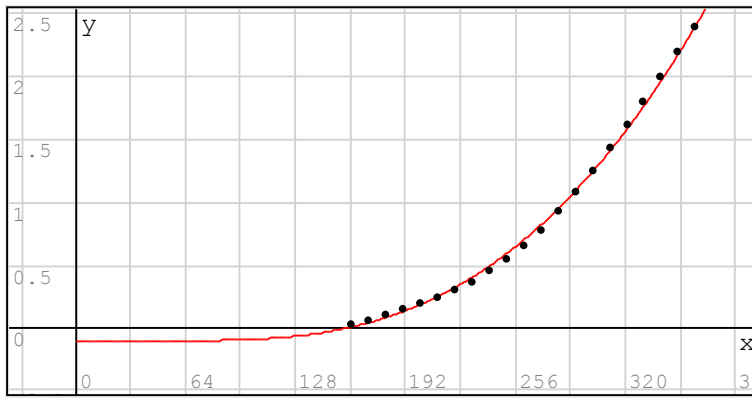
$$c(x) := \begin{cases} 1 & \text{if } (X_1 \leq x) \wedge (x \leq 400) \\ "" & \text{otherwise} \end{cases}$$
 $\varphi(x, \beta) := \varphi(x, \beta, f, 3)$

<= ConjugateGradientVector Fnct

$$\beta := \begin{bmatrix} 0.0081 \\ 2.467 \\ -0.0943 \end{bmatrix}$$

Genfit coeff's of fit

 $\beta := \text{Minimize}(XY, f, \varphi, \beta)$

$$\beta = \begin{bmatrix} 0.0081 \\ 2.4671 \\ -0.0943 \end{bmatrix}$$


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plot(data, "o", 5, "black")
f(x, beta)·1

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SSD = "Sum Square Differences"

$$SSD := \sum_{i=1}^n \left(Y_i - f(X_i, \beta) \right)^2 = 0.023$$

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delta:=for j in 1..rows(XY)
  delta_j:=eval(round(1 - (Y_j / f(X_j, beta)), 3))
augment(X, delta)

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Error(δ)

Populate the collectors [Ug, β]

$$Ug := [-10 -10 -40 -60 -110 -160 -210 -260 -310]$$

$$\beta = \begin{bmatrix} \begin{bmatrix} 0.0328 \\ 0.9733 \\ 0.2259 \end{bmatrix} & \begin{bmatrix} 0.018 \\ 1.3579 \\ 0.0716 \end{bmatrix} & \begin{bmatrix} 0.0134 \\ 1.6554 \\ 0.0328 \end{bmatrix} & \begin{bmatrix} 0.0101 \\ 2.0664 \\ -0.0308 \end{bmatrix} & \begin{bmatrix} 0.0088 \\ 2.3919 \\ -0.0513 \end{bmatrix} & \begin{bmatrix} 0.0081 \\ 2.4675 \\ -0.0941 \end{bmatrix} & \begin{bmatrix} 0.0074 \\ 2.5788 \\ -0.1305 \end{bmatrix} & \begin{bmatrix} 0.0068 \\ 2.8053 \\ -0.1773 \end{bmatrix} & \begin{bmatrix} 0.0063 \\ 6.1599 \\ -0.0338 \end{bmatrix} \end{bmatrix}$$

$$\begin{bmatrix} 0.018 \\ 1.3579 \\ 0.0716 \end{bmatrix}$$