**JWST Project**

# Meeting Notes #4 (due 03/15/23 )

*Instructor: McCleary* *Student: Eddie Berman*

**Agenda**

1. Attempts to plot residuals
2. Went to SUMS
3. Using a class project to do something useful for research
4. Reading

*Residuals Plot*

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# Tried to get MasterDiagnotics Working
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*SUMS*

Lot of fun. Hope to present again soon.

*Useful Class Project / Formulating Concrete Plan*

Help formulating relationship between $\theta$ and $\eta$ to $[A, g_1, g_2, s, u_c, v_c]$
Does $\frac{s}{\sqrt{1-(g_1)^2-(g_2)^2}} \begin{bmatrix} 1+g_1 & g_2 \\ g_2 & 1-g_1 \end{bmatrix} = \begin{bmatrix} \cosh\frac{1}{2}\eta + \cos\theta \sinh\frac{1}{2}\eta & \sin\theta\sinh\frac{1}{2}\eta \\ \sin\theta\sinh\frac{1}{2}\eta & \cosh\frac{1}{2}\eta - \cos\theta\sinh\frac{1}{2}\eta \end{bmatrix}$ and $s = T$ for that one plot or $s =\mid \eta_2 \mid$?
Moreover, elliptical Gaussian's takes the form $f(x,y) = Ae^{-(a(x-x_0)^2+2b(x-x_0)(y-y_0)+c(y-y_0)^2)}$ with matrix representation $\begin{bmatrix} a & b \\ b & c \end{bmatrix}$ where $a = \frac{\cos^2\theta}{2\sigma_X^2} + \frac{\sin^2\theta}{2\sigma_Y^2}$, $b = -\frac{\sin 2\theta}{4\sigma_X^2} + \frac{\sin 2\theta}{4\sigma_Y^2}$, $c = \frac{\sin^2\theta}{2\sigma_X^2} + \frac{\cos^2\theta}{2\sigma_Y^2}$. $T = 2\sigma^2$ ?

Having gained a really deep understanding of the PIFF paper

Do we have "test stars" ? What is their radius ? Fisher-Rao Metrics

**All this word vomit to say I'm looking for the relationship between these 3 matrices.**

**Do we have "test stars" ? What is their radius ? Fisher-Rao Metrics**

*Reading*

Prior Probabilities Edwin T. Jaynes :
http://www.scholarpedia.org/article/Fisher-Rao$_metric$ Thought about this from the chi-square discussion

**NB : Nearing end of semester and my school work is starting to increase a little bit. Wasn't able to do as much as I had set out this week.**