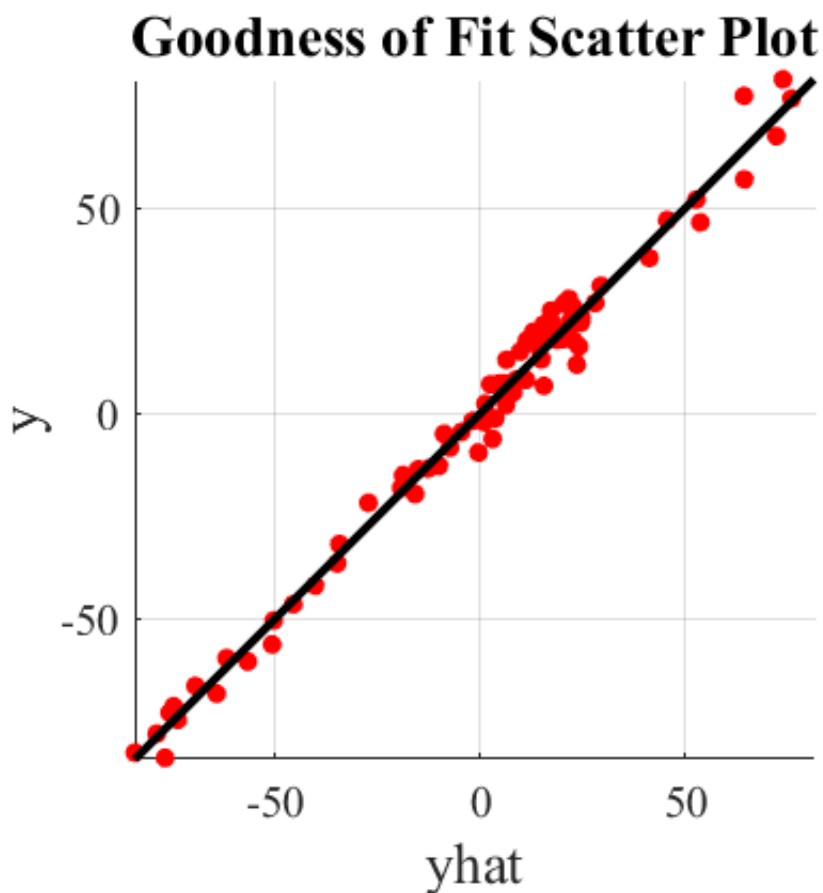


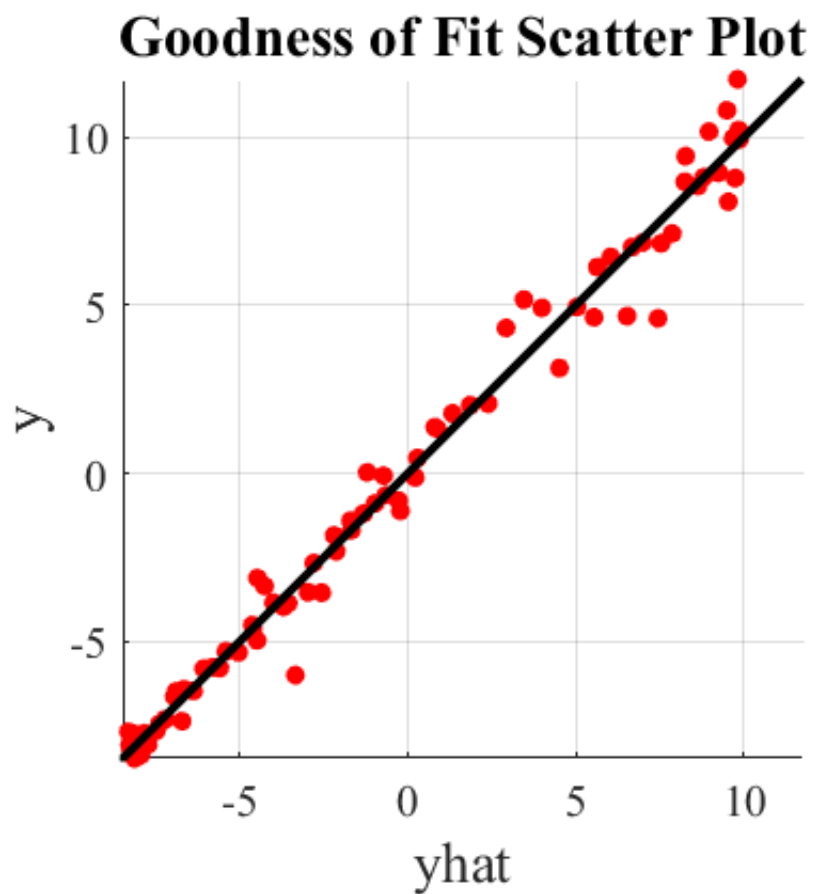
Nanocrystals: Blog Post 9 - Quality of the Model

Extracting morphological changes in nanocrystals using in situ liquid cell microscopy

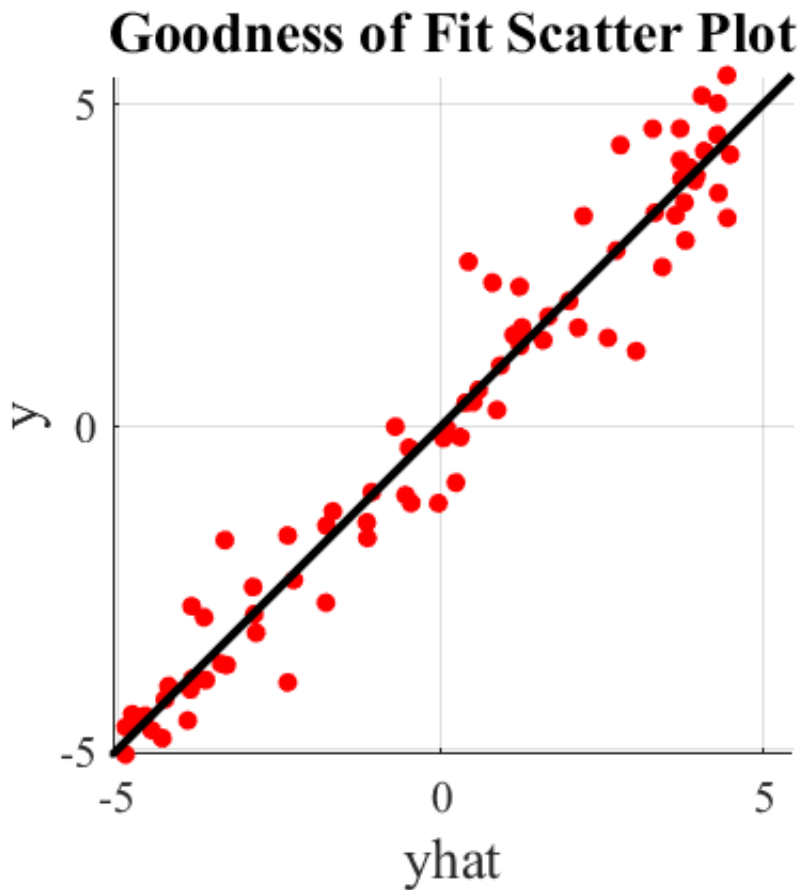
Quality of the Model

For the first two pc scores, we used a fifth-order polynomial, which gave us 21 coefficients. The cross-validated mean absolute error for both was less than 4%, as shown in the previous blog. Below, we show the goodness of fit plots for the first two pc scores.

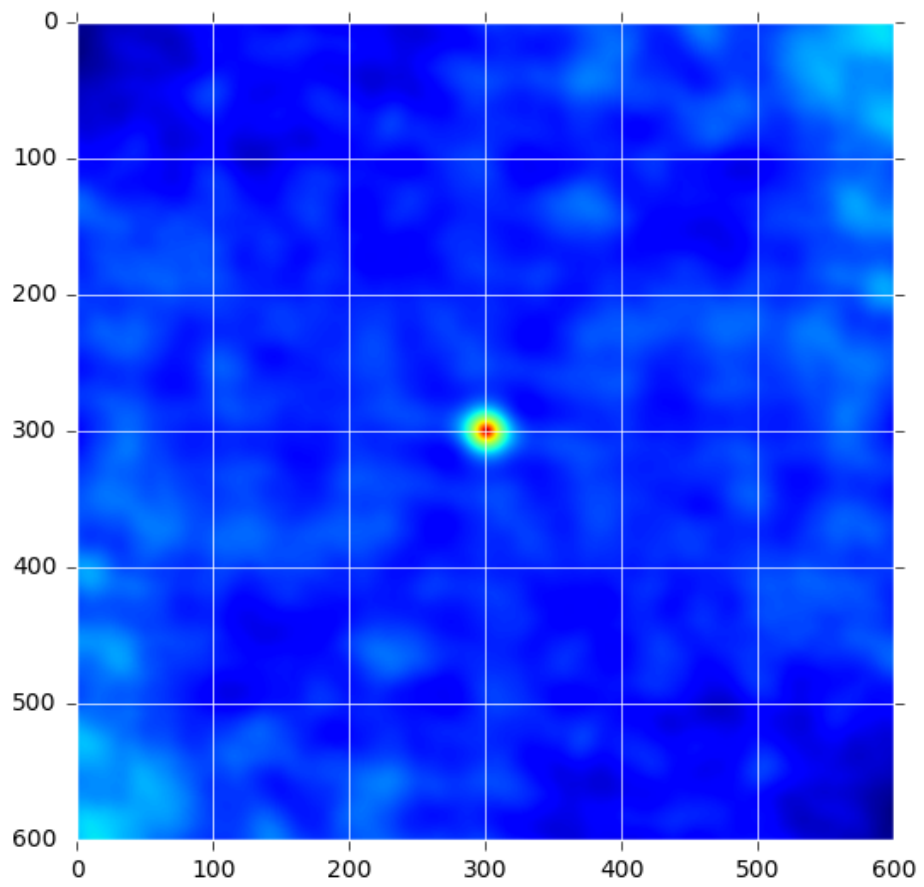


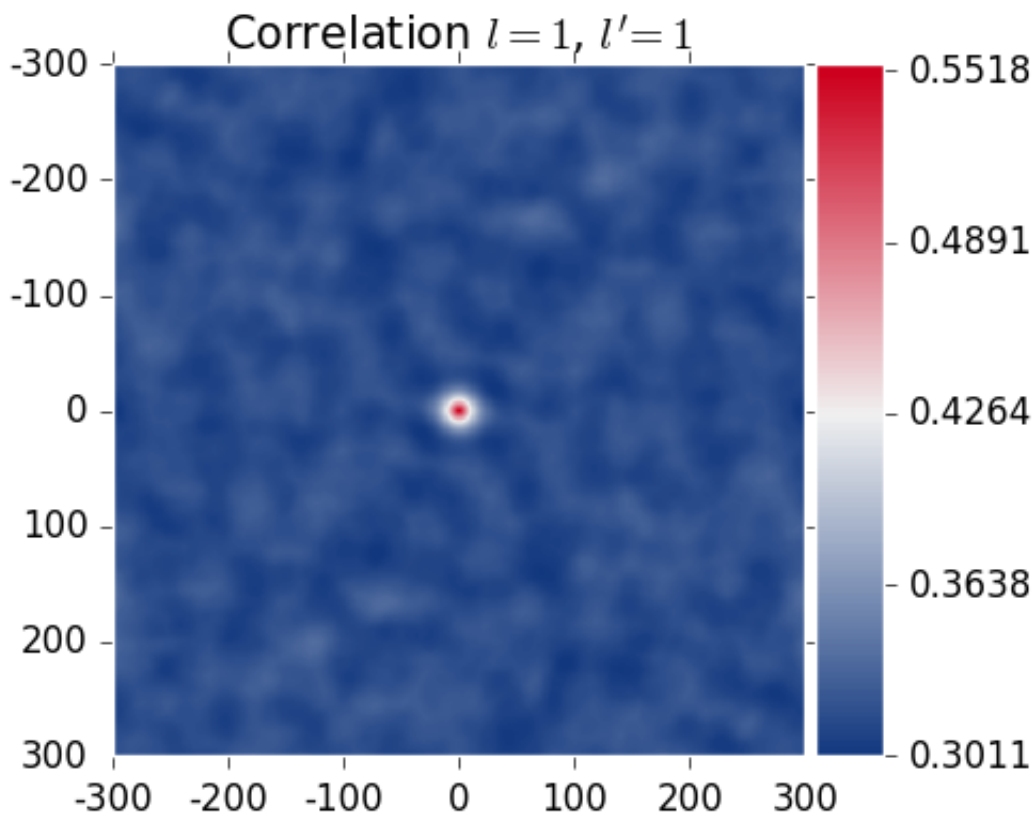


For the third pc score, we used a sixth-order polynomial which gave us 28 coefficients. The cross-validated mean absolute error was around 6%, as shown in the previous blog. Below, we show the goodness of fit plot for the third pc score.



From the r-square values, the cross-validated mean absolute errors, and the goodness of fits, we can see that the model both fits the input data well and predicts new pc scores well. Below, we show the three-term reconstruction of the two-point statistics alongside the full two-point statistics.





From all of the above, we are satisfied with our model predicting the pc scores for microstructures based on given beam dosages and exposure times. Therefore, we have established a processing-structure linkage.

Next we will post our final blog, summarizing all our work on the project and discussing insights/future possibilities. Thank you.