

EP 4130/PH 6130 Quiz 3
26 April 2024

Please upload the solutions include code snippet to google classroom

- The p -value of an experiment looking for a new particle is 2.3×10^{-6} . What is the Z-score? [2 pts]
- What values of constant $\Delta\chi^2$ contours should be used for a model with 4 free parameters, 10 data points, if we want to get 80% confidence intervals? [2 pts]
- Two models (A and B) have reduced χ^2 of 1.4 and 0.7 for 6 and 8 number of free parameters, respectively. Calculate Δ BIC between Model A and model B. Assume both models have been contain 10 data points. [3 pts]
- Write down the subroutine for Nested sampling using **Dynesty** for a model with two free parameters θ_1 and θ_2 with uniform priors for both of them given by $\theta_1 \in \mathcal{U}[-10, 5]$ and $\theta_2 \in \mathcal{U}[0, 20]$ respectively. [3 pts]